IN TROUBLE . . .

. . . A WAY OUT

A Report on Pregnancy and
Sexually-Transmitted Diseases
in Alberta Teens
May, 1987

Prepared for Meeting of Directors, Alberta Community Health System
Gerald H. Bonham, Calgary Health Services, Chairman
Maureen Clark, Fort McMurray & District Health Unit
Kathleen O'Malley, Dept. of Community & Occupational Health
Al Nicholson, Fort McMurray & District Health Unit
Helen Ready, Edmonton Board of Health
Linda Smith, Calgary Health Services

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I. INTRODUCTION

The Meeting of Directors, Alberta Health Units and the Department of Community and Occupational Health, in recognition of the multiprofessional nature of many solutions to public health problems, requested a new look at an old problem; teenage pregnancy.

Under the chairmanship of one of its members (G. Bonham), a special committee to report to the Meeting of Directors was given the task of assessing the problem of Teenage Pregnancy. A report to the Meeting of Directors was requested for the November 1986 meeting.

The Committee addressed the issue of teenage pregnancy from a broader context, including reproductive fitness, sexually transmitted diseases, infertility and the development of healthy sexuality.

The following report is the result of a very active committee which included:

Calgary Health Services:
Gerald H. Bonham
Linda Smith

Edmonton Board of Health
Helen Ready

Fort McMurray & District Health Unit
Al Nicholson
Maureen Clark

Department of Community & Occupational Health
Kathleen O'Malley

As background, the committee recognized the widening gap between menarche (now at 12½ years) and the social and economic capacity to cope with parenting responsibilities (usually thought to be of the order of 19-22 years). In earlier societies, the menarche was later (as late as 15-16 years), and the social capacity for parenting was much earlier, causing the minimal gap of 1-2 years then to become a gap of up to 10 years now.

Studies have recently shown, that 40-50% of Alberta 14-18 year olds are likely to be sexually active, ranging from 24% at age 14 to 66% at age 18 (Meikle 1985).

Bibby reports (Canadian data) that "80% of young people accept pre-marital sex for people that love each other and 50% accept sex within a few dates when individuals like each other".

These sobering facts are against an additional background of:

a) (often) unprotected intercourse
b) lack of adequate sex education
c) barriers to clinical (preventive) measures to prevent conception
d) barriers to access to non-prescription options to pregnancy prevention
e) limited use of methods to prevent sexually transmitted diseases

The health consequences of unprotected sexual activity for the adolescent are high rates of pregnancy, therapeutic abortion, sexually transmitted disease, pelvic inflammatory disease, ectopic pregnancy involuntary infertility.

The social consequences of teenage pregnancy, such as interrupted or cancelled educational opportunity for the mother (and sometimes father), increased potential for abuse and neglect of the child, and the expense of the provision of support systems for both, constitute a high personal and social cost of unwanted teenage pregnancy.

Much of the evidence of useful intervention and social cost is imperfect, but the consistency of this evidence adds credibility to the information available. (Well designed and targeted benefit programs can result in significant improvments in adolescent reproductive health).

The committee believes that we are addressing a high cost problem that is preventable with low cost solutions. The need to invest is evident; the payoff is huge and the means are available for effective intervention. The following report further outlines the problems and solutions.

II. EXECUTIVE SUMMARY

In attempting to examine the issue of pregnancy among Alberta teens, the committee quickly realized that teenage pregnancy was intrinsicly connected with other aspects of reproductive health i.e., sexually transmitted disease, pelvic inflammatory disease, ectopic pregnancy and infertility.

Teen pregnancy is clearly a serious health and social problem. Many teens are not yet physically mature enough to produce a healthy infant. The health of their newborn is below par.

Pregnant teens are often on the road to a cycle of poverty, with lost educational opportunity, enhanced likelihood of repeat pregnancy and welfare dependancy. The social cost to the teen and to society is enormous.

Alberta teens are more likely to become pregnant than teens in most other Canadian Provinces. The most likely explanations are ignorance (sexuality education in Alberta is seriously deficient) and difficulty in accessing birth control (this is inherently more difficult in rural Alberta).

Although this report will show some improvement in older teens during the past ten years, teenagers seventeen and under continued to get pregnant at the same rate. This raises the issue of early education and services for the younger teen.

Alberta teens are also more likely to acquire gonorrhea or chlamydia infections both of which produce pelvic inflammatory disease and ultimately ectopic pregnancy (a fertilized egg which does not, because of damage due to infection, implant in the usual part of the uterus and implants in the Fallopian tubes necessitating surgery). Alberta has the highest rate in Canada of teenage hospitalization for pelvic inflammatory disease and ectopic pregnancy confirming that the high rate of gonorrhea and chlamydia infection as a true problem, not an artifact due to better reporting.

The inescapable conclusion is that Alberta teens are probably sexually active to the degree common to the rest of the country, but are not adequately protecting themselves against pregnancy or infection. Sexually transmitted infections are causing an increasing future burden of infertility.

The preventive clinical services in Alberta are hard to access. In rural Alberta it is difficult for teens to anonymously obtain birth control from a family physician. Some physicians are still unaware of their legal entitlement to provide services to a minor.

The cities have no formal clinical birth control services except Calgary and Edmonton which operate below their potential demand.

The sexuality education programs in the schools is uneven and voluntary, providing for school by school opting-out.

Calgary and Edmonton and other school districts continue to allow principals to determine whether there is a "need" in their schools for sex education. Most parents therefore do not have the option of sexuality education for their children. *Many children in Alberta graduate from Grade XII without any exposure to sex education and according to the Queens Study are consigned to learning in unreliable fashion from their ignorant peers.*

The information in this report was extremely difficult to locate. There is a great need in Alberta and Canada for an adequate data base and sound research.

The Federal Government appears to have relinquished any useful role in family planning and sexuality education. This report outlines an important role for Health & Welfare Canada in the fields of coordination, health promotion, data collection, research and as a critical support in a national clearing house for information on the problems of teen sexuality and effective intervention programs.

The "Provincial" recommendations include the need for readily accessible, and comprehensive (pregnancy and infection protection) clinical services to teens allied with a universal exposure to high quality education services. The committee feels that we have given ignorance a full trial and we are paying dearly. It is time for education. We cannot afford any other course. Much evidence points to its effectiveness. The combined approach in clinical and educational programming has been demonstrated to significantly improve adolescent reproductive health.

We also include recommendations for the pregnant teenager. The woman who decides to complete her pregnancy needs strong coordinated support (education, social and health). The payoff could be enhanced educational attainment, reduced

social dependancy, less likelihood of repeat pregnancy, better birth outcome and enhanced parenting skills. If the decision is abortion we stress that early abortion is better than a later one.

The committee agrees that we have a serious and in many respects a deteriorating problem. The solutions are not unknown. The costs of dealing effectively with the problems are less than the costs of coping with the consequences. We cannot afford to do nothing.

III. RECOMMENDATIONS

Federal and Provincial governments, as well as specialized provincial departments of Community and Occupational Health, Education and Social Services, all have an integral role in prevention.

Provincial Role

The provincial role reflects provincial government responsibilities in education, health and social services. Provincial objectives should be developed for improved reproductive health status which acknowledge the multisectoral nature of the problem. Policies need to be developed to identify priorities for improvement in the reproductive health status.

Department of Community and Occupational Health

1. **Prevention:**

   - o Mandate and fund integrated birth control clinics and adolescent Sexuality Transmitted Disease (STD) screening and treatment in every health unit (with varying hours and free contraception).

   - o Establish a budget and mandate for a sexuality education specialist in every health unit, including supporting budgets for professional inservice, resources and clerical support.

   - o Provide funding for and assist in training of community health nurses as outreach workers in pregnancy, S.T.D. and contraception education.

   - o Design and pilot special approaches to native men and women to promote discussion of their contraceptive/S.T.D. needs and goals.

   - o Promote universal opportunity for sexuality education K-12.

   - o Continue liaison with Alberta Education to help with inservice and curriculum planning to incorporate universal sexuality and reproductive health issues in the health curriculum.

2. **Promotion:**

Fund a five year media campaign for public education to inform professionals, parents and adolescents of the extent of the problem of reproductive health, S.T.D. and unwanted pregnancies to begin during the fiscal year 1987-88.

3. **Data System:**

(a) Develop and maintain a provincial data system with regular dissemination of information on:

- o Live birth rate (age 10 - 19)
- o Abortion rate (age 10 - 19)
- o Percentage of births of low birthweight (age 10 - 19)
- o Incidence of S.T.D. by type (collected by one year age groups, gender and health service delivery area).

(b) Adoption rate at birth, 3 months, and between 3 and 12 months post-delivery.

(c) Population estimates by individual year age groups by health unit locality, including 5 year projections.

Have most data available within 6 months at the end of each calendar year. Have all data available within the next calendar year.

4. **Research/Data Analysis:**

- o Analyze live birth rate/abortion/low birth weight/S.T.D./ birth order by health unit region. Include existing strategies in prevention, socio-economic and cultural implications.

- o Provide/promote research for Alberta residents into birth outcomes of teenage parents including welfare dependancy, late adoption, child abuse, neglect and hospitalization, injury rates, health status of infants born to adolescents, effect of pregnancy on unwed father and his family.

- o Fund research into the cost to Canada/Alberta of the one parent family begun as a result of unwanted teen pregnancy.

5. **Parenting Support:** for optimum birth and parenting outcomes.

- o Develop and fund comprehensive prenatal services for pregnant teens in every health unit to include sexuality education, nutrition and positive health practices.
- o Co-sponsor integrated workshops, cooperation between departments working with pregnant and parenting teens (Social Services, Education, Health) to identify strategies and share successes.
- o Develop and fund parenting support services for adolescent parents in conjunction with Social Services.
- o Provide pilot program funds for post pregnancy support services and evaluation.
- o Develop and fund services in areas where second and third order births are particularly high in order to prevent second and higher order unwanted teen births.

6. **Advocacy at the Cabinet Level:** (Healthy Public Policy)

(a) Encourage the Minister of Education to:

- o Develop a policy statement in support of strategies to improve the state of reproductive health status with priority on prevention of unwanted pregnancy, S.T.D. and the promotion of optimal reproductive health status.
- o Mandate universal access to sexuality education in grades K-12 with optionality being reserved only for parents.
- o Provide adequate funding for resources and inservices in order to support the sexuality portion of the health curriculum.
- o Mandate inservice for the sexuality curriculum.

(b) Inform the Minister of Hospitals and Medical Care that from a public health perspective, access to abortion during the first trimester must be improved to reduce the incidence of negative sequella associated with second trimester therapeutic abortions.

(c) Encourage the Minister of Social Services to:

- o Develop a policy statement in support of strategies to improve the state of reproductive health status.

- o Mandate and fund inservice on sexuality and training for all staff working with adolescents.

- o Fund comprehensive counselling services for pregnant and parenting teens.

- o Fund economic support for pregnant and parenting teens, including parenting skill courses and job retraining.

- o Promote/provide research into adoption practices and social consequences of keeping the infant.

- o Develop a data system and regular dissemination of information on: the number of single parents on Welfare, percentage of teens on Welfare, percentage of single parents who had children as teenagers, percentage of teens who surrender for adoption (by mother's age) at birth, 3 months, and between 3 - 12 months post delivery as well as 1 year intervals.

(d) Encourage the Minister of Advanaced Education to:

- o Advocate and fund adequate teacher training at undergraduate levels in the areas of health and family life education.

- o Allocate and fund adequate training in sexuality in other undergraduate and graduate disciplines such as nursing, social work, medicine.

Federal Role

Establish a Reproductive Health Directorate within Health & Welfare Canada to address the following:

1. **Coordination**

Conferences:

- o Sponsor or provide an annual national conference for exchange of program developments, to include both provincial and local program staff across Canada.

Clearinghouse:

- o Develop and financially maintain a Canadian registry of existing clinical and educational services for contraception and sexually transmitted diseases.

- o Provide provincial and federal data on successes and research in preventive programs.

2. **Promotion**

- o Develop a comprehensive health promotion campaign targetted to adolescents, similar to the "Break Free" campaign. This would focus on rights and responsibilities in relationships and positive health practices that support both prevention and protection, e.g. use of condoms and oral contraceptives together to prevent pregnancy and protect against S.T.D.'s including AIDS.

- o Develop and distribute adolescent lifestyle materials related to reproductive health; e.g. smoking, nutrition, alcohol, drugs, contraceptive methods, fitness and S.T.D.'s for use in schools, community and public awareness campaigns.

3. **Funding**

- o Provide multiyear demonstration grant funding for comprehensive adolescent reproductive health projects, e.g. integrated services for sexually transmitted diseases and contraceptive clinical and educational services. These could serve as a training centre for establishing similar programs.

- o Co-ordinate and fund a national study to evaluate the impact of different strategies to improve reproductive health status.

4. **Data**

- o Establish a data base on the status of reproductive health nationally and provincially and regularly disseminate information on the following indicators of reproductive health status:

  : incidence of adolescent live births by one-year age groups including birth order.
  : incidence of S.T.D. by type, gender by one-year age groups.
  : incidence of P.I.D. by one-year age groups.
  : percentage of low birthweight by one year age groups.
  : incidence of abortion by one-year age groups.

- o Provide annual analysis of trends in reproductive health.

5. **Research**

- o Promote/fund research required to develop effective strategies to promote adolescent reproductive health, including:

  : level and source of knowledge in reproductive health and sexuality of Canadian youth.
  : age of onset of sexual intercourse of Canadian youth.
  : contraceptive use at onset and subsequent occasions.
  : factors affecting compliance in contraceptive use.
  : factors affecting acceptability of services.

- o Fund research into new methods of prevention/protection for the adolescent that will address both birth control and S.T.D. prevention.

- o Fund research into health status of infants born to adolescents as compared to other mothers controlling for individual age and socio economic variables.

Voluntary/Private Sector

- o There is a considerable role for organizations like the Family Life Education council, Church groups, home and school associations and Planned Parenthood, in educating children, teens and parents. This report is primarily focussed on government action. The recommendations to Government do, however, relate to the voluntary sector as well as to the public sector through the development of policies and funding arrangements.

IV THREE ALBERTA TARGETS:

TARGETS :

- o REDUCE TEEN PREGNANCY
- o REDUCE SEXUALLY TRANSMITTED INFECTION
- o IMPROVE NEWBORN HEALTH

The following targets are identified as necessary and attainable.

1 (a) **Achieving a reduction in the adolescent pregnancy rate:**

		RATES PER 1,000 POPULATION			
		Alberta Current	Canadian Average	5 year* target	10 year target
Live births	10-14 yr.olds	0.6	0.2	0.2	0.1
	15-19 yr.olds	34.7	24.4	24.4	14.3[x]
Abortion	15-19 yr.olds	18.1	14.7	14.7	10.0

* 5 year targets are the 1984 Canadian average

x 10 year target for births to 15-19 yr.olds is the current best provincial rate (Quebec)

(b) **Achieving a reduction in second and higher order births**

		RATES PER 1,000 POPULATION			
		Alberta 1984	Canadian 1984	5 year target	10 year target
Live births	15-19 yr.olds	6.5	4.0	4.0	2.0

2 **Achieving a reduction in sexually transmitted diseases**

	RATES PER 100,000 15-19 YR. OLD FEMALES			
	Alberta 1985	Canadian 1985	5 year Target	10 year Target
Gonorrhea	907(1)	565(3)	565	300
Chlamydia	1098(2)	not available	750	350

3 **Achieving a reduction in low birthweight infants born to teen mothers.**

	PERCENTAGE			
	Alberta Current	Canadian Average	5 year Target	10 year Target
15-19 yr.old Mothers	7.2	7.2	5.0	3.0

1. Statistical report 1985, Sexually Transmitted Disease Control Alberta Social Services and Community Health (p. 7).

2. IBID (p. 17) based on extrapolation 6 months reporting July-Dec, 15 with Alberta population 91,000 = 1098/100,000.

3. Sexually Transmitted Disease - Canada 1985

   Health and Welfare Canada 1986, Bureau of Communicable Disease Health Protection Branch, Ottawa

V. DESCRIPTION OF PROBLEM

Teens are engaging in sexual activity at an early age, and this activity is often unprotected against conception and infection. Subsequent unwanted pregnancy and contraction of sexually transmitted diseases have substantial health, social and economic consequences for Alberta's teenagers. Lack of sexuality education, barriers in accessing contraception and in accessing S.T.D. services contribute to the problem.

A. SEXUAL ACTIVITY AND PREVENTION OF NEGATIVE HEALTH EFFECTS

1. Early Sexual Activity

A 1981 study of 810 Calgary teens aged 13 to 18 (Meikle 1985) showed that by age 13, 16.6% of teens had experienced intercourse. This number rose to 66.7% engaging in intercourse by age 18.

2. Lack of Contraception and Disease Protection

Only one-third of the sexually active individuals in the study reported using contraceptives EVERY time they had intercourse (Meikle 1985). (Teens don't always perceive themselves at risk of pregnancy or infection.)

Teens have significant psychological barriers to openly purchasing barrier contraception and protection against S.T.D's. This is a larger difficulty in rural areas where anonymity is extremely difficult.

Barriers to Accessing Contraception

Reports indicate that in the U.S. the mean delay between first intercourse and the first clinic visit to initiate contraception is 13.2 months for teenage clients (Kisker 1984). A survey of teen clients in Calgary's Teen Clinic showed an average reported delay of three months from engaging in sexual intercourse to arrival at clinic.

Currently, in addition to those family physicians who will prescribe contraceptives, full clinical services are only available in Edmonton and Calgary. As a result, the sexually active teen in smaller communities and rural areas encounters major obstacles in obtaining contraception. Approaching the family physician, or any other physician, might be difficult and will not necessarily meet with success. Many physicians are uncertain of their legal position in prescribing to minors, while others want to avoid contributing to what they consider promiscuous behaviour (Herald & Goodwin 1979). Studies have demonstrated that teens are embarrassed to go to their family physician not only because he/she is familiar with the family but also because they fear that the physician will reveal their request for contraception to the parents.

Unfortunately, not all physicians may realize that in fact, legally, they are allowed to prescribe contraception without permission or knowledge of the parent. In addition to the legal option in Alberta, there is a "suppression of claim" on the Alberta Health Care form, which can be used to ensure that the visit to the physician for contraception does not appear on the statement provided to the parent. Not all physicians are aware of this, but many are prepared to provide the service when requested by their teenage patients (Boldf, Roberts, Latif 1982).

Barriers to Diagnosis and Treatment of Sexually Transmitted Disease

Teenage sexual activity has become more common in the 1980's. With the activity comes a population at risk for sexually transmitted diseases (including AIDS and herpes). Adolescents exhibit many of the same features of sexual behavior seen in the adult population. Adolescents' ability to recognize, evaluate symptoms of, and seek treatment for sexually transmitted disease (S.T.D.) are generally limited. Many teenagers are hesitant to admit that they have begun sexual activity or that something like sexually transmitted disease could happen to them. The combination of these factors has elevated the risk of S.T.D.s for teenagers.

The risks and severity of consequences in contracting a sexually transmitted disease are disproportionate to the teen population because of their lack of use of prophylactics and lack of prompt treatment. Females aged 15-19 are increasingly at risk. In 1985, the rates for females (15-19) with (muco purulent cervicitis and non-gonococccal urethritis) (MPC/NGU) and gonorrhea exceeded the rates for male cohorts in Alberta. In both instances, the number of cases was double that of males of the same age (Statistical Report, 1985 Sexually Transmitted Disease Control, Alberta). These women, who are often asymptomatic, are doubly at risk for contracting a sexually transmitted disease (with complications of pelvic inflammatory disease and ectopic pregnancy).

3. Lack of Comprehensive Sexuality Education

Alberta does not have mandatory sexuality education only 16.8% of Alberta students (Grade 10) learned about sex from courses at school as opposed to 30.9% of Ontario students. Forty-three percent of Alberta students' sexuality information comes from friends (King 1984). Sexuality education is optional in the provincial health curriculum for Kindergarten to Grade 12 in Alberta.

Eighty-one percent of all parents surveyed in the 1981 Calgary study favored detailed birth control education programs being offered in the schools and 79.6% supported the idea of making birth control information available to teenagers by agencies outside of the schools (Meikle 1985). In spite of these facts, sexuality education varies from school district to district and, indeed, across individual schools.

Basic information and prevention strategies for unwanted pregnancy and contraction of sexually transmitted diseases are lacking for Alberta students.

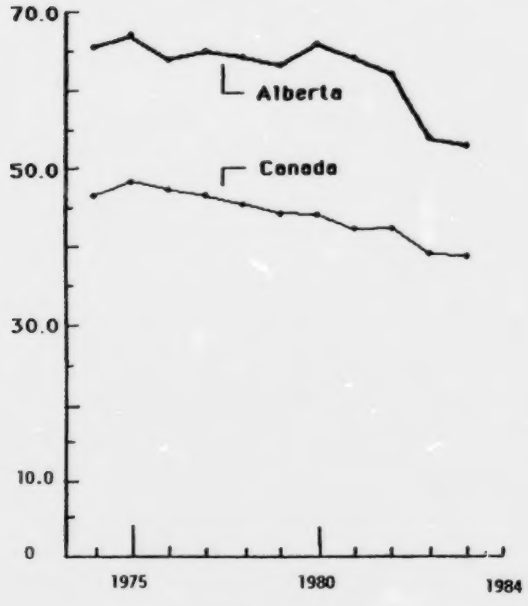
B. THE TRENDS

1. Adolescent Pregnancy Rate*

Between 1974 and 1984, the adolescent pregnancy rate (live births plus therapeutic abortions) was significantly higher in Alberta than the Canadian average, see Figure 1. Although the rate has declined by 19.6% in Alberta and by 17.3% nationally between 1974 and 1984, the Alberta rate remained 36.8% higher than the overall Canadian rate in 1984.

Figure 1.

Adolescent Pregnancy Rate
(12-19 year olds)
in Alberta and Canada
1974-1984



Statistics Canada, Births (1973-1977) and Births and Deaths (1978-1984), Vital Statistics, Volume 1, Catalogue 84-204.

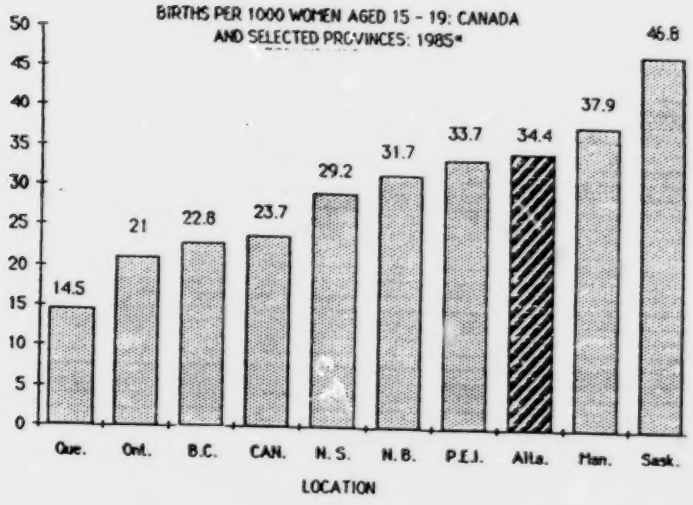
Alberta Hospitals & Medical Care, Therapeutic Abortions Reported by Hospitals in Alberta for the Year Ended December 31, 1984. Health Economics & Statistics, October 25, 1985.

* Adolescent pregnancy rate is based on live births and therapeutic abortions, and is exclusive of estimated 15% of pregnancies which end up as spontaneous abortions. This exclusion of the spontaneous abortion rate is applicable to all parts of this report.

2. Live Birth Rate:

The Alberta adolescent fertility rate in 1985 was 34.4 compared with British Columbia at 22.8, Ontario at 21.0 and Quebec at 14.5. See Figure 2.

Figure 2.



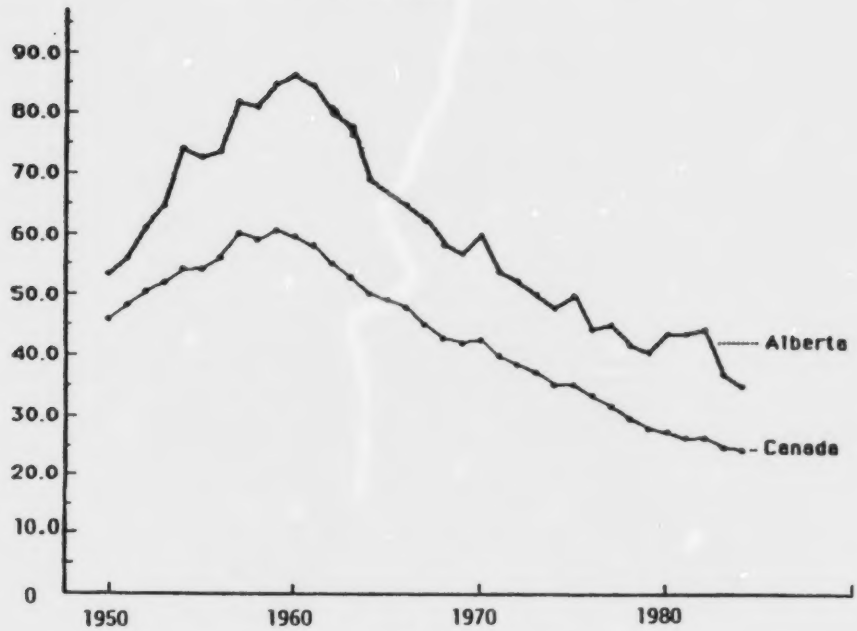
*Newfoundland, Yukon and N.W.T. not included

The adolescent live birth rate in Alberta has declined by 26.2% between 1974 and 1984, see Figure 3. The national adolescent birth rate is declining somewhat faster, falling by 30.4% between 1974 and 1984. This situation has widened the relative gap between the two rates. The Alberta rate was 35.1% higher than the overall Canadian rate in 1974, but by 1984 the difference was 44.3%.

Teen live births rates among Alberta Health Units also vary markedly (Appendix A), with the highest rates in more remote regions. Data specific to births in native teens is not available. The situation of births to natives in teen years warrants more detailed analysis.

Figure 3.

LIVE BIRTHRATE PER 1000 WOMEN AGED 15-19
(1950-1984)



Statistics Canada, Births (1973-1977) and Births and Deaths (1978-1984), Vital Statistics, Volume I, Catalogue 84-204.

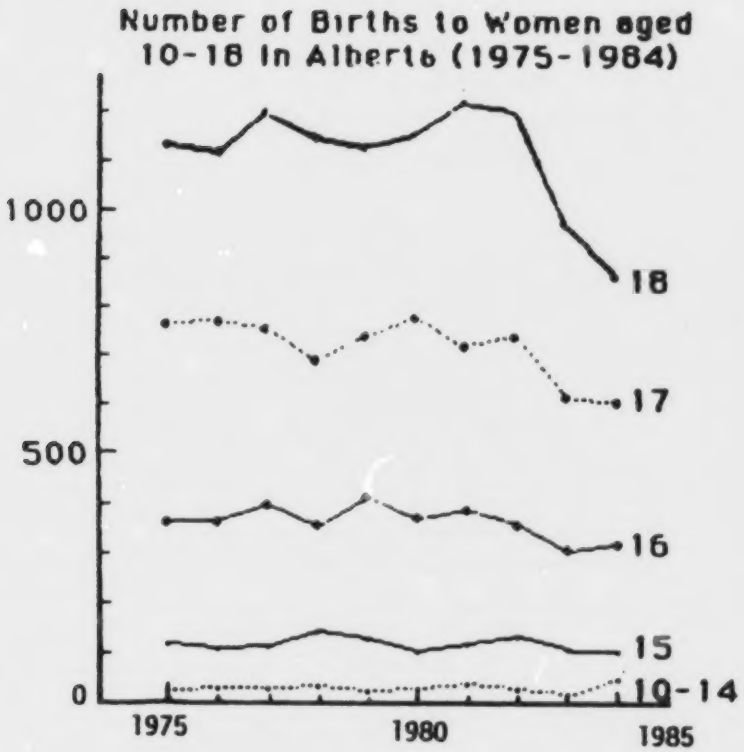
Alberta Community and Occupational Health, Vital Statistics Annual Review, Vital Statistics, (1975-1984).

The recent Alberta decline in the number of births in the adolescent age group is unevenly distributed among the different age cohorts, see Figure 4. Ninety-four percent of this decline can be attributed to women aged 17 and over.

Births to Alberta women aged 10-16 declined by only 7.3% between 1975 and 1984, and births in age group 10-14 increased.

There has been virtually no improvement in the adolescent birthrate in Alberta for those 16 and under. This raises a very important issue of access to information and services for this very young age group.

Figure 4.



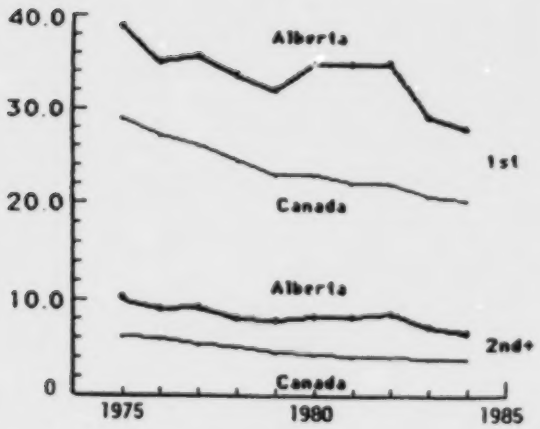
Alberta Community and Occupational Health, Vital Statistics Annual Review, (1975-1984), Vital Statistics.

Birth Order

Alberta is 38.7% higher than Canada in first babies born to teen women and 72.5% higher for second or higher order babies born to teen mothers (Figure 5). This raises the important issue of adequate information and contraceptive services for those who have had their first infant.

Figure 5

First vs. Second and higher order Birth Rates per 1000 Women aged 15-19 in Alberta and Canada (1975-1984)



Statistics Canada, Births (1973-1977) and Births and Deaths (1978-1984), Vital Statistics, Volume 1, Catalogue 84-204.

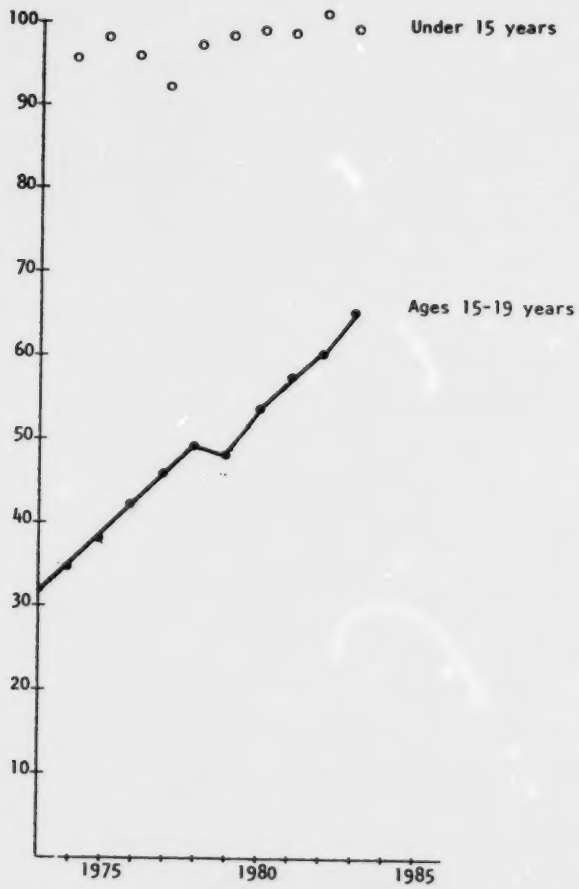
Alberta Community and Occupational Health, Vital Statistics Annual Review, (1975-1984), Vital Statistics.

Proportion of Births to Single Mothers

One of the most startling trends in the last 10 years in the area of teenage pregnancy is the dramatic increase in the proportion of babies that are born to single mothers ages 15-19 years. See Figure 6 In Alberta, this proportion has grown from 33.5% in 1975 to 65.3% in 1984 - an increase of 94.9%.

Figure 6

PROPORTION OF TOTAL LIVE BIRTHS
TO UNMARRIED MOTHERS
1974-1984 ALBERTA



Alberta Social Services and Community Health, Vital Statistics Annual Review 1984, Vital Statistics

3. Therapeutic Abortion Rate

Information on abortions is incomplete due to regional inequity in reporting, plus lack of data re out-of-province and out of country abortions. However some relevant statistics are presented below.

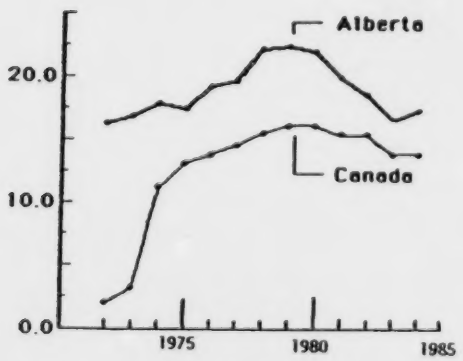
Both the number and the percentage of therapeutic abortions to patients under 20 years of age in Alberta hospitals has declined since 1978, from 2,463 or 36.9% of all abortions to 1,696 or 25.4% of all abortions.

In 1984, the Alberta therapeutic abortion rate among women aged 15-19 in Alberta was 23.9% higher than the rate for Canada, see Figure 7.

Provincial comparisons are difficult to assess with access to abortion being unequal across Canada. As well, access to abortion within Alberta is uneven. Trend data is incomplete and may be unreliable. For example, abortion services in late 1986 were unavailable to the large Northern Alberta population due to the controversy over extra billing. With these constraints in data identified, there still continues to be an unacceptable level of the need for abortions in Alberta in 1985 where 1,696 abortions were performed on Alberta women aged 13 - 19. (Alberta Hospitals and Medical Care). The question arises on the number of unwanted pregnancies resulting in abortions that could be prevented through educational and clinical services.

Figure 7.

Therapeutic Abortions per 1000 Women aged 15-19 (1972-1984)



Statistics Canada, Therapeutic Abortions (1982, 1984) Catalogue 82-211.

Alberta Hospitals & Medical Care, Therapeutic Abortions Reported by Hospitals in Alberta For the Year Ended December 31, 1984, Health Economics & Statistics, October 25, 1985.

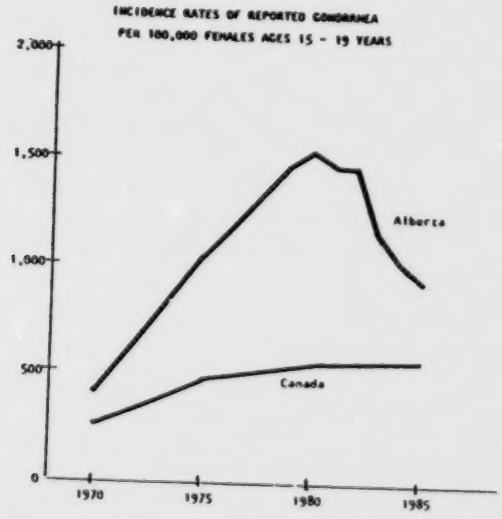
4. Sexually Transmitted Diseases Rate:

Alberta records the highest incidence rate of gonorrhea in Canada, 86.8% higher than the national average across all age groupings. **Although this has been postulated to be a reflection of more complete reporting in Alberta, the concommitant high rate of pelvic inflammatory disease (P.I.D.) hospitalization and high rate of teen pregnancy suggest both a high rate of unprotected sex activity and a consequent truly high rate of S.T.D.**

After a peak in 1981, when one gonorrhea case was reported for every 78 Albertans aged 15-19, reported incidence rates of gonorrhea in this age group have dropped substantially in Alberta (-42.9% between 1981-1984), see Figure 8. There is concern, however, that the major increase in chlamydia and other sexually transmitted diseases may well offset the decline in the gonorrhea rate

In Alberta, non-gonococcal urethritis (N.G.U.) became reportable in July 1985. From (July - December) 1985, 18% of all non-gonococcal urethritis/mucopurulent cervicitis reported were 15-19 year olds and 37% of these were 20-24 year olds. That is, 55% of all N.G.U./M.P.C. reported were contracted by these youths aged 15 - 24.

Figure 8.



Source:

Statistics Canada. Notifiable Diseases. Catalogue 82-201

Alberta Community and Occupational Health. A Summary of Statistics Concerning Sexually Transmitted Diseases - 1975, 1979-1985. Sexually Transmitted Disease Control.

Chlamydia: Chlamydia infection is far more common than gonorrhea according to Canadian statistics. Infections caused by Chlamydia are now recognized as the most prevalent and damaging of all sexually transmitted diseases (MMWR 1985). The implications for adolescents are grave. In 1984, 15 to 19 year olds comprised 21.3% of all cases and 20 to 24 year olds comprised 43.3% of all cases of Chlamydia reported in Canada (Canadian Disease Weekly Report, April 13, 1985). As chlamydia reporting was initiated in Alberta in July 1985, the full picture will not appear until all 1986 data is tabulated.

New Types of S.T.Ds: As more S.T.Ds., such as herpes, AIDS, chlamydia, hepatitis B, and penicillin resistant gonorrhea, are discovered and reported, prevention and prompt effective diagnosis and treatment is becoming more critical. Media information on AIDS and herpes will hopefully reinforce the need for prophylactics adjunctive to other birth control methods.

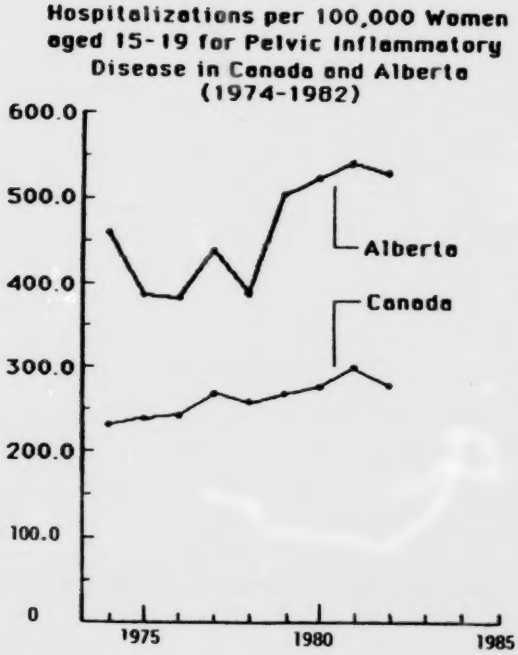
Neonatal Effects: Concern about the effects of sexually transmitted diseases on pregnancy has increased in recent years. Gonorrhea, syphilis and herpes are known to contribute to congenital abnormalities and infant mortality. However, current epidemiological investigation is concentrating on chlamydia which affects 2% to 24% of pregnancies (Babin 1986). This disease has become the sexually transmitted disease most commonly transmitted to newborns. Chlamydia causes M.P.C (Mucopurulent cervitis), acute P.I.D. (pelvic inflammatory disease), and maternal and infant infections during pregnancy and following delivery. Chlamydia is the most common cause of neonatal eye infections and afebrile intestinal pneumonia in infants under six months of age Morbidity and Mortality Weekly Report, 1985). It is also the most common cause of ectopic pregnancy (a pregnancy in one of the Fallopian tubes, usually requiring surgery).

Future Fertility:

The effect of chlamydia and other sexually transmitted diseases on future fertility is of concern. The 15 to 24 year old age group accounted for 46% of all P.I.D. hospitalization in Canada. The greatest increase in P.I.D. in Canada, from 1971 to 1982, was in the 15 to 19 year old age group (66%). Recurrent infections can lead to ectopic pregnancy or sterility (S.T.D.'s in Canada 1985). P.I.D. causes sterility in 11% of its first cases, 23% of second cases and 54% of third cases (Hatcher 1986).

Hospitalization rates for P.I.D. in Alberta among women aged 15-19 have increased by 37.1% between 1975 and 1982 (the last year for which data is available), see Figure 9. The national rate increased by only 16.7% in the same period. Alberta rates have always been higher than the rates for Canada as a whole, but the gap widened noticeably in the early 1980's. In 1982, the Alberta rate was fully 89.9% higher than the national average.

Figure 9.



Statistics Canada, (Ottawa), P.I.D. Hospitalization figures kindly provided by Diane Ablack, Data Management Offices, Health Care Section, Health Division.

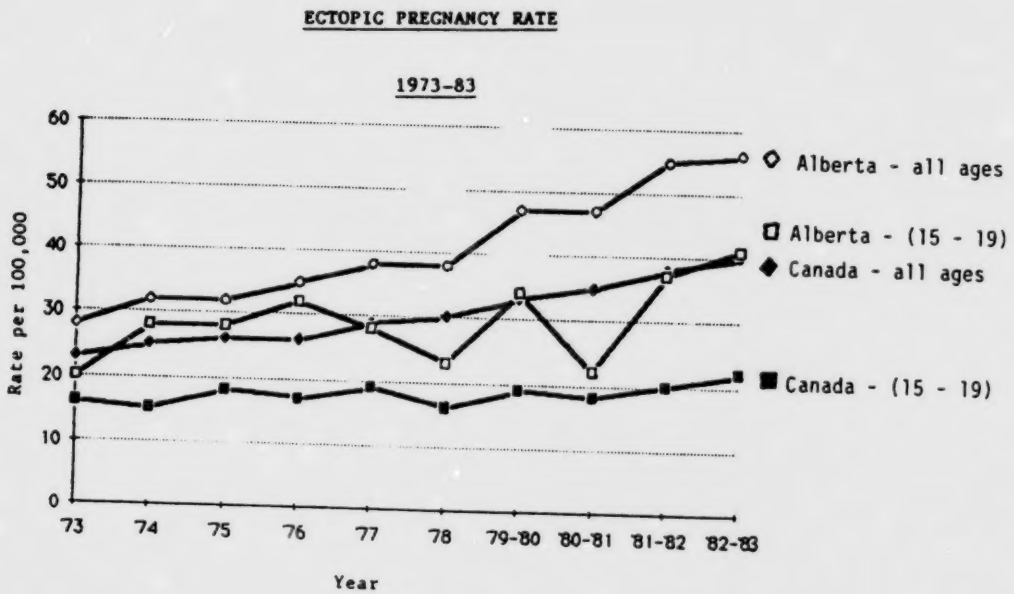
The P.I.D. cases among women aged 15-19 treated in Alberta hospitals (Westrom 1986), would translate into almost 500 cases of involuntary infertility between 1974 and 1982. The P.I.D. hospitalization figures in no way reflect the true incidence of the disease. Recent surveys by the Laboratory Centre for Disease Control (Ottawa) suggest that only 10-15% of all patients treated for P.I.D. are admitted to hospital (Todd 1986).

Ectopic Pregnancy Rates

The ectopic pregnancy rate in Alberta is 40% higher than Canada as a whole and is the highest rate in all of Canada.

This same large difference shows up in Alberta teens compared with Canadians 15 - 19 years. See Figure 10

Figure 10.



Source: Health and Welfare Canada (provided directly to the committee 1987)

C. HEALTH CONSEQUENCES OF TEEN PREGNANCY

1. Maternal Health

Repeat Pregnancy: Early onset of childbearing is associated with more children and a decreased interval between pregnancies. Seventeen percent of all babies born to teens in Alberta in 1985 were of a second or higher birth order.

Eclampsia, Hypertension: The Canadian study of health complications in teen pregnancy (Grindstaff 1983) showed that teens had a higher incidence of hypertension and eclampsia than the general childbearing population with the incidence of eclampsia twice as high among younger (17 and under) as among older (18 to 19) teens.

2. Infant Health

Low Birthweight: Low birthweight is the most reliable indicator of reproductive health. Low birthweight increases the risk of infant mortality and morbidity. Low birthweight rates of from 6% to 20% are quoted for infants born to teenage mothers. In Alberta, low birthweight infants born to teen mothers from 1980 to 1985 ranged from 6% to 9.4% of total births to teens, as compared to a fairly steady 6% of births to mothers of all ages. The proportion of low birth weight babies born to Alberta mothers in 1984 was 42.3% higher in mothers aged 15-19 and 192.3% higher for mothers under 15 than for mothers between 25-59 years, see Figure 11. Factors correlating with low birthweight include pregnancy less than two years following menarche, pregnancy induced hypertension (preclampsia or toxemia), poor nutrition, cigarette smoking, drug or alcohol abuse, and fetal abnormality. All of the first four factors may play a role in increasing the incidence of low birthweight among teenagers (Grant 1986).

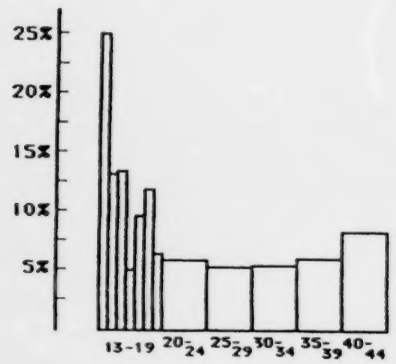
A Canadian study of teenage pregnancy and health complications analyzed the hospital records of 3,277 women delivering a first child in London, Ontario between 1970 and 1979. Both prematurity and low birthweight appeared to be associated with age. Teens who were giving birth for the first time were found to be twice as likely as first time mothers older than 20 years to deliver prematurely and to bear underweight infants (Grindstaff 1983).

Recent analysis of the research (Makinson 1985) indicated that the bulk of adverse health consequences of teenage childbearing may be of social and economic origin rather than attributable solely to the effects of young age.

Unpublished 1985 data from Calgary Health Services' Perinatal program has shown a reduction of low birthweight (2500 grams and under) in under 18 mothers from over 18% in 1981 to under 6% in 1985 in this high risk group. A team approach consisting of a nutritionist, educators, nurses and social workers was involved in both school and community based programs.

Figure 11

Proportion of Low Birth Weight Births [<2500 g] by Age of Mother (Alberta 1984)



Alberta Social Services and Community Health, Vital Statistics Annual Review 1984, Vital Statistics.

Alberta Social Services and Community Health, Vital Statistics Annual Review 1984, Vital Statistics.

Perinatal Mortality: A 1986 release from the Perinatal Committee of the Society of Obstetrics and Gynecologists of Canada indicated that perinatal mortality for infants born to mothers under age 18 in Canada is two to two and one-half times that of the general population. The main causes of neonatal deaths are prematurity and low birthweight in infants born to teenage mothers (Grant 1986).

Accidents and Hospitalization: Young maternal age was found to be an additional predictor of health problems in the first year of an infants life in studies conducted United States and Britan. These occured particularly in regard to the incidence of sudden infant death, accidents and gastrointestinal problems, Makinson (1985).

D. SOCIAL CONSEQUENCES OF TEEN PREGNANCY

A 1986 report on adolescent pregnancy in Ontario (Orton 1985) concluded that adolescent pregnancy is a key point of intervention for prevention of social and health problems in general. The choice of continuing with the pregnancy and not surrendering the infant and the repeat of this sequence when the infant matures, creates a very rapid cycle of disadvantaged families. There is a higher incidence of foreshortened education, poverty and marital breakdown amongst women who had become mothers as adolescents, regardless of current marital status (Bacon 1974). Canadian data shows that marriage breakdown is more common in adolescent marriages, and the suicide rate for adolescents is higher if there has been a recent pregnancy (Grant 1986). An estimate of 80 - 90% of all single teen mothers keep their children in Canada (Schlesinger 1985).

1. Marital Breakdown: Teenagers who marry are two to three times as likely to divorce or separate as those who marry in their twenties. A 1982 Alberta report stated that in one study, 43% of all divorces involved females who were first married as a teen. Another study discovered that three out of the five teens who became pregnant were separated or divorced within six years of marriage (DeWaal 1982).

   The number of Alberta one-parent families headed by mothers more than doubled between 1966 and 1976, with much of the increase due to divorce, separation and the rising number of out-of-wedlock births.

   Welfare Dependency: Single parent families, especially those headed by women, are particularly vulnerable to poverty. Forty percent of Alberta single parents, almost all of them women, were on public assistance in 1977. In 1983 49% of all female single parents in Canada had income below the government established poverty line. (Report of the Task Force on Childcare, 1986.)

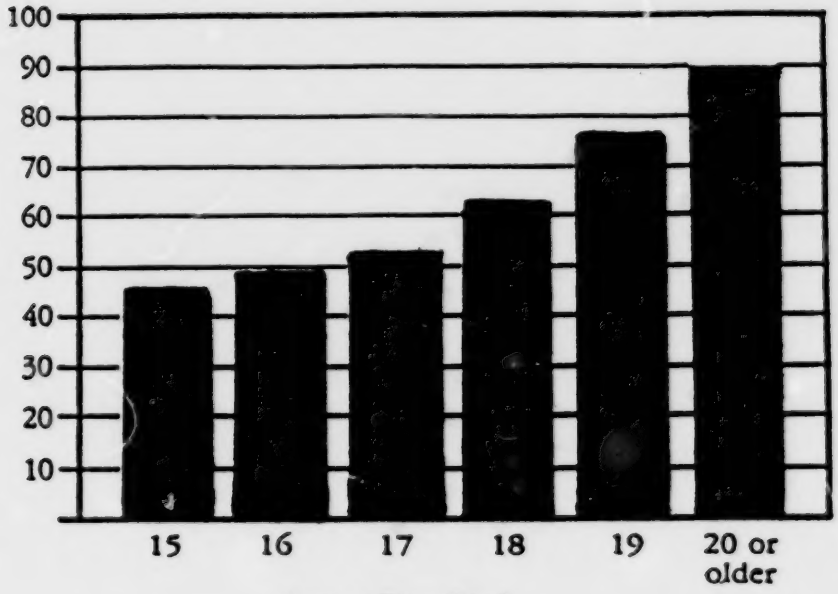
   Child Neglect: In 1980-81, there were 12,353 reports of child neglect in Alberta. A Child Welfare Branch study found that more than half of the child neglect cases investigated over a nine-month period in Edmonton involved single parents (DeWaal 1982).

Foreshortened Schooling: Lower educational and employment aspiration (for men and women), lower female labour force participation, and women's lower incomes are all associated with childbearing before the age of 20. Adolescent parenthood is a problem because it often precedes the completion of education and securing of employment. Of all single parent mothers in Canada in 1984 who had children under 3, only 29% were employed. (Report of the Task Force on Childcare, 1986.)

Figure 12 illustrates some of the findings of an analysis of a U.S. longitudinal study of Work Experience of Youths (Mott and Marsiglio, 1985)

Figure 12.

High School Completion Rates By Age At First Birth For Women Age 20-26 In 1983



Source : Mott F. and Marsiglio, W., "Early Childbearing and Completion of High School," Family Planning Perspectives, September/October 1985

E. ADOPTION vs KEEPING:

From a public health standpoint the preceding evidence favours the surrendering of infants born to young unmarried teen mothers. However, currently 80 - 90% of teen mothers keep their infants.

In Alberta, the number of ward placements (including older children) dropped by one-half since 1982, from 734 to 337 (as of December 17, 1986). A waiting list of 1,250 adoptive couples who have completed their home study waits for children while over 11,000 couples are on the deferred waiting list started February 1985.

A favourable policy for surrendering of infants would be helpful in Alberta. British Columbia, for example, allows the mother to select among three families in placing her infant. This allows the mother an opportunity to give input into the placement and to feel that she is taking an active part in selecting a home for her baby. Preferences on urban vs rural, socio-economic , and number of siblings, can be taken into account, which promotes peace of mind.

F. **ECONOMIC COSTS**

Support to teens having unwanted children is costly. Those who provide support to these teens, including health agencies, hospitals, social services, and employment agencies, would readily attest to this.

However, not providing support is more costly in the long run. This is apparent when we consider the multiple health and welfare costs which unwanted teenage pregnancy contributes to, such as:

HEALTH CARE/MEDICAL COSTS:

Pregnancy

- Prenatal — physician, nursing
- Childbirth — physician, hospitalization
- Postnatal

Abortion

- Abortion counselling
- Diagnosis and procedure

S.T.D

- Treatment
- Consequences

(a) Loss of Fertility - costs in diagnosis, counselling medical procedures, invitro fertilization

(b) Pelvic Inflammatory Disease - diagnosis, treatment, hospitalization

(c) Ectopic Pregnancy - hospitalization, treatment

SOCIAL WELFARE COSTS:

Income Maintenance

Pre-Postnatal counselling

Adoption - counselling and placement

Fostercare

Lifeskill Training

Daycare

Job retraining

Short and long term maintenance support

An estimate of the 20 year cost for Albertans to provide support for the new single parent families created by the first births to teenage mothers - 1985 is 443,791,300.00 (See III Cost Benefit Section)

G. THE CURRENT SITUATION

In 1985, there were 140,902 adolescent women in Alberta between the ages of 12 and 19 years. Figure 13 summarizes the current situation by illustrating the reproductive health status of these adolescents in 1985 using a combination of Alberta statistics and estimates derived from recent research.

Assuming 39.3% of adolescent women were sexually active, 55,389 of the 140,902 adolescents between 12 and 19 were sexually active in 1985. This calculation represents a combination of individual year cohorts 12 - 19 in accordance with Meikle's estimates.

Unfortunately during 1985 an estimated 1,972 cases of reportable S.T.D. occurred among these sexually active women (18 of them had syphilis). This figure includes an estimate of the number of cases of non-gonococcal urethritis based on a six-month report of 517 cases. (Non-gonococcal urethritis first became a reportable disease on July 1, 1985.)

Another potential outcome of sexual activity amongst these adolescent women was pregnancy. There were 4,668 pregnancies to this group in 1985 (live births + still births + therapeutic abortions).

Of 4,668* pregnancies:

1,650, or 35%, of these ended in therapeutic abortion.

25, or .5%, of these resulted in a still birth.

The remaining 2,976, or 64.5%, of these pregnancies were carried to term and resulted in a live birth:

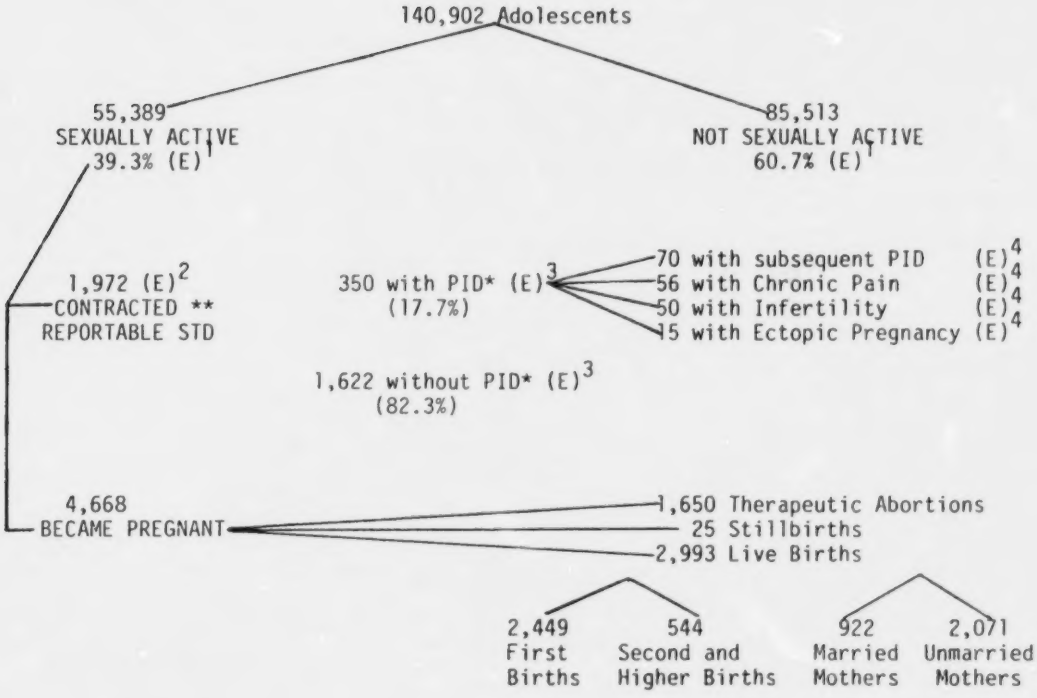
- 69% of these children were born to an unmarried mother
- 190 of these babies were of low birthweight (less than 2,500 grams)
- 528 of these babies were second birth order
- 70 of these babies were third birth order
- 8 of these babies were the fourth or higher birth order
- 34% of these children were born to women 17 years of age and younger
- 2 were born to 12 year olds
- 4 were born to 13 year olds

- 29 were born to 14 year olds and one of these babies was the second birth order
- 112 babies were born to 15 year olds and two of these were the second birth order.

FIGURE 13

ADOLESCENT REPRODUCTIVE HEALTH STATUS
ALBERTA *

Females Ages 12 - 19 Years
1985



ESTIMATES

(E)[1] Adapted from Meikle 1985.

(E)[2] Assumes 1 Case per patient and same rate of NGU prior to July 1 as after.

(E)[3] Assumes untimely or inadequate treatment. 247 cases due to gonococcal infection. Adapted from Hatcher 1986, p. 37 103 cases due to NGU, adapted from Eschenbach, 1985.

(E)[4] Assumes moderate episode, adapted from Jessamine, 1984.

H. FUTURE PROSPECTS

If current Alberta trends continue:

: the future reproductive health status of adolescent women in Alberta will continue to be suboptimal within the Canadian context.

: the Alberta adolescent pregnancy rate will continue to be higher than the Canadian average and the proportional gap between the two rates will continue to widen.

: the incidence of second and higher birth order for Alberta children of adolescent mothers will remain higher than the Canadian rate.

: the Alberta adolescent therapeutic abortion rate will remain high.

: there will continue to be an unacceptable rate of low birthweight babies born to teen mothers.

: social, health and economic costs in adolescent pregnancy will continue to drain health and social service coffers.

: the incidence of gonorrhea will continue to be the highest in Canada. Young women's increased susceptibility to both acquiring gonorrhea and N.G.U./M.P.C., if exposed, and in many cases being asymptomatic until complications occur will result in increased incidence of pelvic inflammatory disease. If the current trend continues, by the year 2000 the number of women hospitalized for P.I.D. between the ages of 20-24 will be twice the current rate. Today, these persons are between the ages of 5-9 years.

: with the increase of P.I.D. will come an increase in the incidence of involuntary infertility.

: the rate of ectopic pregnancy will continue to increase (Jessamine, 1984). One out of every 50 women born in Canada during 1954 will have surgery for an ectopic pregnancy by the time she is 40 years of age. Ectopic pregnancy is a life-threatening complication.

VI. SERVICES AVAILABLE

A. OVERVIEW

There is a variation in the range of reproductive health services available to teens residing in different parts of Alberta. This is a reflection of the optionality of reproductive health services and autonomous structure of Health Units. A summary of reproductive health services available by Health Unit service delivery area 1986 is displayed in Table 1.

Table 1

SUMMARY OF REPRODUCTIVE HEALTH SERVICES

HEALTH UNIT SERVICE DELIVERY AREA	FAMILY PLANNING/ SEXUALITY EDUCATION & CONSULTATION	FAMILY PLANNING/ SEXUALITY COUNSELLING	FULL CLINICAL SERVICES	PREGNANCY TESTING SERVICES	STD CLINIC	PREGNANCY SUPPORT SERVICES	SPECIALIZED SERVICES TO PREGNANT TEENS	FORMAL ARRANGEMENTS RE: SERVICES FOR PREGNANT TEENS
Alberta East Central						HU		
Alberta West Central	HU	HU				HU		
Athabasca						?	?	?
Banff National Park						HU		HU
Barons-Eureka-Warner						HU		
Big Country						HU		
Chinook						HU		
Calgary Health Services	HU	HU	HU	HU	COH	HU	HU	HU
Edmonton Board of Health	HU	HU	HU	HU	COH	HU		HU
Lethbridge	HU	HU		HU		HU	HU	HU
Drumheller						HU		
Foothills						HU		
Ft.McMurray & District	HU	HU		HU	HU	HU		HU
High Level-Ft.Vermilion						HU		
Jasper National Park						HU		HU
Leduc-Strathcona						HU		
Medicine Hat						HU	HU	
Minburn-Vermilion	HU					HU		
Mt. View								
North Eastern Alberta	HU	HU				HU		
Peace River						HU		
Red Deer	VA					HU		
South Peace	HU	HU		HU		HU	HU	
Stoney Plain						HU		
Sturgeon						HU		
Vegreville	HU	HU				HU		HU
Wetoka	HU					HU		

Provider of Services Code
HU = Health Unit
COH = Dept. of Community and Occupational Health
? = Did not respond to survey

The data suggests that there is greater access to services for pregnant teens than there is for teens wishing to avoid a pregnancy.

Twenty-five health units indicated that they provide pregnancy support services to teens while only eleven health units have a formal family planning program. Four health units have specialized pregnancy support services for teens, but only two health units provide a full range of family planning clinical services.

Voluntary agencies are involved in both the preventive and support aspects of teenage pregnancy. Adolescents are not a target group of the natural family planning programs, where only 6% of clients are 19 years of age or younger (Alberta Community and Occupational Health Statistics).

A variability of S.T.D. clinical services across Alberta features formal specialized clinics found only in Edmonton, Fort McMurray and Calgary. The rest of Alberta depends on practising physicians for diagnosis and treatment.

A similar variability in sexuality educational programming is due to opting out of the curriculum at all levels (provincial, local, school board (principal/teacher/amd parent)

B. **EDUCATION SERVICES:**

Junior and Senior High Schools:

The elementary health curriculum presently in place has only optional sexuality components which means that many young adolescents reach puberty with no school-based knowledge of sexuality.

Alberta Education is in the process of piloting a new junior high health curriculum. Theme V - Human Sexuality is an optional component in the curriculum at all levels.

There is no data available to indicate the number of schools piloting Theme V or the number of students receiving sexuality education via the health curriculum.

A new curriculum entitled "Career and Life Management" will be mandatory at the 20 level (Grade 11) in 1987. However, again the separate unit of sexuality is optional. **It is therefore possible for a student to be deprived of all contact with sexuality education in our school system.**

Inservice and training for educational professionals teaching sexuality is not mandatory and is sporadic across the province. Too often teachers are given a curriculum to teach sexuality without inservice.

C. **SEXUALLY TRANSMITTED DISEASE CONTROL:**

The Alberta Sexually Transmitted Disease Control program maintains a team of health educators who provide educational services to the community. Sexually Transmitted Disease Control has a dual target for their education program - the adolescent and health care personnel and teachers who are in contact with adolescents. Data is not available on the number of recipients of the services or the number of hours providing these services. A summary of activity data is contained in the following table.

Table 2.

Education Services provided by S.T.D. Control

Mainly Targeted to Adolescents - Alberta

1985

	Number of Activities
Junior High School classes	136
Senior High School classes	130
Post Secondary classes	33
General Public (usually between age 18 - 24 yrs)	38
Nurses/Health Education programs	24
Inservice - Hospitals	47
Inservice - Health Units	7

The Sexually Transmitted Disease Control service maintains three free-standing clinics for counselling, screening and treating sexually transmitted diseases. The data on the number of visits and new admissions for each of the clinic sites is given in Table 3. Unfortunately, age-specific data and information on the number of clients (as opposed to cases which may represent repeat infection), are not available. Please note that the Lethbridge Clinic was closed on March 31, 1986 due to lack of utilization.

Table 3.

1985 Clinic Attendance

Sexually Transmitted Disease Control

Clinic Location	Number of New admissions*	Number of Visits
Edmonton	4,754	12,747
Calgary	3,976	11,804
Lethbridge	346	901
Fort McMurray	339	1,237

Additionally, there is a mobile unit for contact tracing only (541 client visits).

* Does not include premarital serologies.

D. COMMUNITY HEALTH NURSING:

Presentations to Groups:

Within the Alberta Community Health Nursing Activity Reporting System (ACNARS) there are four "Subject Codes" which contain within their respective definitions, content which contributes to sexuality education. These are :

Family Life Education
Family Planning
Sexually Transmitted Disease
Pre-natal Teaching.

Table 4 summarizes attendance by age group at such presentations given by Alberta Community Health Nurses in 1985. Typically, group education consists of one or perhaps two presentations to each group.

Table 4.

Alberta Community Health Nurses-Presentation to Groups, 1985

Selected Topics, Selected Age Groups. Source:
Alberta Community Health Nurse's Activities Recording System (ACNARS)

	Family Life	Family Planning	S.T.D.	Pre-natal Education	Total	Potential Audience (Number of Alberta children in population group)*
Grade 1 - 6	35,889	-	-	-	35,889	215,859 (33,568 in Grade 6)**
Grade 7 - 9	12,066	951	882	112	14,011	101,486
Grade 10 - 12	6,542	1,314	891	1,646	10,393	104,100
Special Education	274	126	274	8	682	14,417

* Information: Courtesy Alberta Education

** Grade six is the grade where community health nurses typically teach "maturation"

It should be noted that the above figures are probably lower than normal due to the nurses' strike in 12 health units.

Counselling and Education to Individuals:

Community Health nurses routinely provide counselling and education to individuals as part of their regular programs or on request. Again, counselling education related to sexuality is a component of four the same ACNARS "Subject Codes". Table 5 summarizes such individual contacts made by Alberta Community Health Nurses in 1985 in selected age groupings.

Table 5.

Alberta Community Health Nurses - Individual Counselling 1985.

Selected Topics, Selected Age Groups. Source: Alberta Community Health Nurse's Activities Recording System (ACNARS)

	Family Life	Family Planning	S.T.D.	Pre-natal Education	Total	Number of Alberta children in population group
Grade 1 - 6	266	-	-	-	266	215,859
Grade 7 - 9	108	83	17	363	571	101,486
Grade 10 - 12	64	109	27	1137	1337	104,100
Special Education	10	12	1	9	32	14,417

* Information: courtesy Alberta Education

It should be noted, as well, that family planning and birth control are integral components of routine health counselling during post natal visits, as well as infant and preschool clinic visits that the public health nurse has with virtually all new mothers in Alberta.

E. FAMILY PLANNING PROGRAMS:

1. Education and Consultation Services

Designated family planning programs (six under voluntary auspices and ten based in health units) provided education and consultation services during the fiscal year 1985/86. Table 6 on the following page provides a summary of education and consultation services provided by family planning program pertaining to adolescents.

Table 6.

Summary of Education and Consultation Services provided by Family Planning Programs pertaining to Adolescents Fiscal Year 1985/86

	Number of Activities	Number of Participants	Number of hours
Professional Inservice Education Services (Education Professionals only)	10	175	51
Direct Classroom Education Services			
- Grades 7 - 9	169	4,739	869
- Grades 10 - 12	165	4,957	1,170
Community Education Services (Teens only)	44	652	394
Special Needs Education Services (Teens only)	64	754	392
Consultation Services (Education Professionals and students only)	339	369	475

2. Counselling and Referral Services

All family planning programs but one reported providing face-to-face counselling and referral services. However, only two programs, Calgary Health Services and Edmonton Board of Health provide a full range of family planning clinical services. Four additional programs provided pregnancy testing services.

Adolescents, 19 years and younger, were the largest group of clients, 5,308 of adolescents 19 years old were seen in face to face counselling.

The 5,308 adolescents seen received one or more of the following services:

Counselling

Contraceptive counselling
Pregnancy counselling
Decision making counselling
STD counselling

Clinical
Routine screening
Contraceptive treatment
Screening for STD

VII. COST BENEFIT

A. PREGNANCY PREVENTION

A 1986 Ontario Report comparing expenditures on preventive public health family planning services to adolescents and Welfare and Family Benefit payments to adolescent sole support mothers showed a cost benefit ratio of 1 to 10.

"For every family planning dollar spent in 1978 via public health units to prevent pregnancy among adolescents, ten dollars were spent on three of the immediate costs of adolescent pregnancy: abortion services, short term and long term income maintenance to adolescent sole-support mothers" (Orton 1986).

We refer you to Appendix D, where the Ontario report describes the comparison of expenditures on abortion services to adolescents and welfare and family benefit payments to adolescent sole support mothers.

It has been demonstrated that for every ten patients seen in a clinic one pregnancy is averted (Forrest 1981). In Alberta in 1986 the Calgary Family Planning Clinic saw approximately 2,442 individual teen clients. Using the above formula a potential 244 pregnancies may have been averted.

An estimate of public costs to teenage child bearing using a US formula of $13,902 average payment for families begun by each first birth to a teenager in 1985 shows a total estimate of $43,791,300 public costs to Albertans in a 20 year period. (Appendix F). This cost would apply to each annual cohort of teenagers who keep their infants. Accurate Alberta costs are not available.

ESTIMATED INCOME MAINTENANCE COSTS

Single mothers - Alberta born 1985, based on Feb. 1985 rates.

Single mother and infant	$430.00	rent & utilities
	289.00	allowance
	27.00	laundry
	10.00	phone
	36.00	transportation
	$756.00	per month

If the child is over 4 months the $289.00 allowance drops to $216.00. In income support costs for 1 year = $8,776.00 per single parent family.

There were 2,071 unmarried mothers aged 15 - 19 in Alberta in 1985. If an estimated one half or 1,000 were on welfare the cost for income maintenance alone for single parent families of infants born in 1985 would be $8,776,000.00 per year.

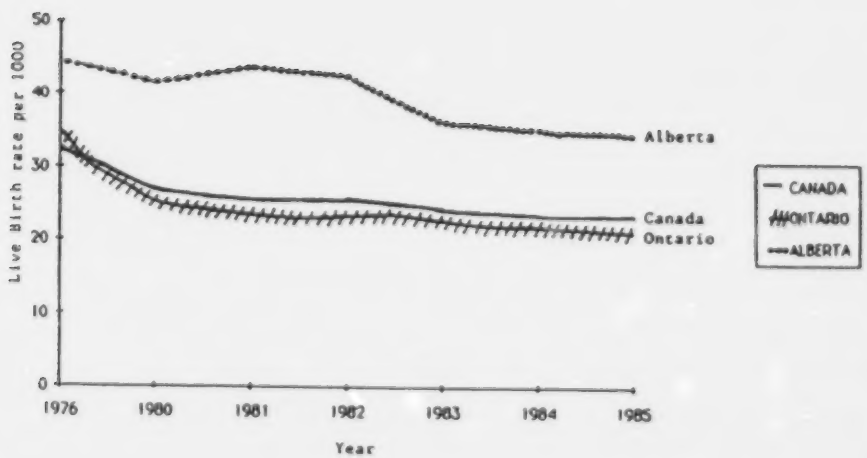
Note: This figure is for BABIES born in the year 1985 and does not account for single mother families of infants born between 1980 - 1985.

The Ontario report documents the savings for Ontario Ministries of Education, Social Services and Hospital Health Care through prevention (appendix C). The rate of live births to teens in Ontario has dropped at a much greater rate than Alberta in the past 5 years. Due to the initiation of family planning policy in Ontario, the equivalent of a whole years incidence of adolescent pregnancy has been averted." (Orton 1986, P. 126)

Although Alberta's rate of live births in teens has declined since 1976 this rate has not been as rapid as the Ontario decline (Figure 14). A similar program incorporating a family planning policy could reduce our rate to Ontario levels, and provide similar savings.

Figure 14.

LIVE BIRTH RATES COMPARISON (15-19)



B. STD PREVENTION

No reliable Alberta data has been identified to show the full dollar cost of STD. These include medicare, hospitalization (P.I.D., ectopic pregnancy) and clinical services for infertility diagnosis and treatment (and possibly "in vitro" fertilization). Recent costing of "in vitro" fertilization at Foothills Hospital, Calgary, quoted a price of $3,500 per attempt, with a ceiling of three attempts per couple. The success rate for this program is only 12 to 15 %. The program is expected to serve 250 applicants in a year.

Using the potential number of teenagers being infertile through an STD (Figure 11) 50 women (12 - 19) would become infertile in 1985.

C. ABORTION PREVENTION

Data is not available on the costs to Alberta Hospitals and medical care on the actual costs of abortion. A policy directed to reproductive health and unwanted pregnancy prevention also helps lower the numbers of abortion and subsequent costs to the health system.

D. LOW BIRTHWEIGHT PREVENTION

Prenatal care saves money and lowers infant mortality in the most cost effective way (Hughes 1986, P. XIX).

Saving very tiny infants has occurred through provision of intensive noenatal services for newborns. Hospital costs are over-shawdowed by costs related to care and education of handicapped infants, the rate of handicapped goes up sharply as the birthrate drops below 2,000 grams. In 1985 there were 190 low birthweight infants born to teens in Alberta.

Prevention of unwanted pregnancy and adequate prenatal care and support for those who choose to carry through the pregnancy is crucial to reduce the financial costs of low birthweight infants. The costs are not only in the short-term via hospitalization but also long-term through increased rates of Cerebral Palsy, learning disabilities, and other birth defects.

With a reproductive health policy in Alberta we could direct services and education to lower the unwanted pregnancy rate and disease rates. In the long term, this approach would provide considerable savings to the Ministries of Education, Social Services and Community Care.

In this current period of restraint attending to cost savings is of premium importance.

VIII. ANALYSIS OF COPING STRATEGIES

A. OVERVIEW

Although it is recognized that individual countries or provinces need programs which will be acceptable and compatible with the political, religious and cultural fabric of their society, valuable lessons can be learned from the success experienced by others, which often includes innovative and daring approaches. As was recently pointed out, "Telling teens that sex was only for adults didn't work" (Kinnon 1984).

A persuasive argument for preventive services is the recent Ontario study. The combination of clinical and educational programming in Ontario has been demonstrated to be effective in reducing teen pregnancy (Orton 1986).

B. EFFECTIVENESS OF EDUCATION

A study by King and Robertson (King 1984) on Canadian health attitudes and behaviours, showed that the proportion of children learning about sexuality in Alberta schools was much lower than in other provinces. Whatever the reason for parental reluctance to take responsibility for their children's sexuality education, it appears that the school system is the most viable alternative for transmitting sexual information, and the majority of adults approve of this function (Allgeier 1983). In 1984, according to a Gallup Poll, 83% of adult Canadians believed that sexuality education should be taught in schools, yet only 50% of Canadian schools have any kind of sexuality education. Alberta provides optional sexuality education curricula in grades 4 - 9 and is proposing another optional curriculum for grade 11. School boards who opt-in generally delegate the option to the individual school principals in their systems. The individual schools in turn provide for optional attendance. The hierarchy of optionality creates an ever-diminishing potential audience. The result is that many parents are currently being denied the option of permitting their children to receive sexuality education in the schools.

One belief of some opponents to sex education is that it promotes promiscuity. Research evidence clearly does not support this. Dr. Jean Yves Frappier (1983) in Quebec, Meikle et al (1988) in Calgary, and Zelnik & Kim (1982) in America found students receiving sex education to be no more likely to engage in sexual intercourse but rather that it

may increase the more responsible use of contraception, and encourage and support those who wish to abstain (Herold 1984).

Most researchers agree that education should go beyond "the plumbing" to include feelings and behaviours, to be effective (Steinman 1982). Edward S. Herold (1984) probably hits the nail on the head with his recommendations, summarized as follows:

1. examine the positive, life-enriching aspects of sexuality, rather than emphasize the negative pathological aspects.

2. assist students to gain insight into their sexual development, in order to enhance greater self-awareness and understanding of their own sexuality.

3. help students to clarify and to depend on their own sexual values, as opposed to on those of their peers.

4. provide the framework for and encourage participation in open discussions of sexual topics, in an attempt to improve communication skills in this area. This may also encourage students into having similar discussions with their parents, which many indicate does enable them to feel closer to their parents.

5. promote development of tolerance of, and respect for, others with opinions different from their own.

"Being more knowledgeable about sexual issues, having greater self-understanding and being able to communicate more effectively can increase one's self-esteem. A very important objective of sex education is the fostering of positive feelings of self-worth" (Herold 1984).

Some school boards in Alberta have taken a progressive step by introducing human sexuality education in the curricula, ahead of such curriculum development by the Alberta Department of Education. However, to date, Alberta Education has still not made sexuality education a mandatory component in our health curriculum.

Support of abstinence is a critical component in every education program. Data shows that education in sexuality can help <u>postpone</u> sexual intercourse and support the choice to abstain.

One cannot understate the importance of education in the prevention of sexually transmitted disease. There is no vaccine or immunity that can be developed for sexually transmitted disease. All sexually active individuals must have information about transmission to adopt protective behaviors and knowledge about the signs and symptoms of infection so they can seek treatment early.

In Support of sexuality education the Junior High Curriculum (Alberta Education 1985) states:

"Human beings have no built-in knowledge of how to solve the problems of family living and how to meet basic needs effectively in our complex and changing society. This knowledge must be acquired.

Family life education has three chief purposes:

> *to develop emotionally stable children and adolescents who feel sufficiently secure and adequate to make decisions as to their conduct without being carried away by their emotion;*
>
> *to provide sound knowledge not only of the physical aspects of sex behaviour, but also its psychological and sociological aspects, so that sexual experience will be viewed as a part of the total personality of the individual;*
>
> *and to develop attitudes and standards which will ensure that young people and adults will determine their sexual and other conduct by considering its long-range effects on their own personal development, the highest good of other individuals and the welfare of society as a whole."*

C. EFFECTIVENESS OF CLINICAL SERVICES

Clinical services available to teens are an essential component of a program to prevent teen pregnancy and for early detection and treatment of S.T.D. The clinical services in Canada are uneven with fairly complete coverage for adolescents in Ontario and Quebec, and scattered services elsewhere (Jones et al, 1985). In Alberta, full clinical services are available only in Edmonton and Calgary.

The effect of clinical services alone, without education, has been demonstrated to reduce teen pregnancies in high socio-economic localities, but not to the same extent in low socio-economic areas. "Single programs on education or contraceptive services are not adequate for localities of low socio-economic status." (Orton, 1986 pp.120).

D. COMBINED APPROACHES

Authors such as Kirby, Herold and Orton are of the opinion that whereas increased knowledge is an important and realistic outcome of school based sex education programs, this needs to be combined with other interventions if effective behaviour or health status goals are to be realized. If the goal is to reduce unintended teenage pregnancy, and reduce S.T.D., an education/clinic combination succeeds (Orton, Rosenblatt, 1986). Note: It is recognized that communities that develop both educational and clinical services may have different characteristics than communities that reject both these services.

The Ontario experience demonstrated that the combination of public health clinical services and education in school demonstrated a greater decline in pregnancy rates in both younger and older teens regardless of the socio-economic status (Orton and Rosenblatt 1986).

Some authors describe success in reducing the teenage pregnancy rate by combining education with school-based birth control clinics. It was found in Minnesota that by providing health services to meet the needs of all students - thereby protecting the anonymity of the sexually active student - utilization of birth control facilities was increased (Steinman 1982).

E. MEDIA

Recently, the U.S. Academy of Pediatrics stated that unwanted pregnancy and sexually transmitted diseases could both be prevented if youngsters got information on birth control from the same media that often promotes sex through music and programming. The Academy urged radio and television to promote birth control commercials. There are no federal or provincial regulations in Canada prohibiting advertising of contraceptives other than the birth control pills which are covered under restrictions on prescription drugs.

There are no positive messages or images regarding contraceptive use in the media in Alberta. Advertising of contraception is limited to the occasional magazine advertisement of condoms. A.I.D.S. education is now allowing condom advertisements on TV where contraception was disallowed.

Teenagers watch approximately 24 hours of TV each week (A.C. Neilsson Company 1984 Report on Television: US data). While television is replete with sexual comment, innuendo and behavior, references to contraception are rare. Television portrays six times more extramarital sex than sex between spouses. Ninety-four percent of the sexual encounters on soap operas are between people not married to each other (Greenburg 1981). 60% of music videos include some portrayal of sexual feelings or impulses. Adult sexually explicit videos account for 15-20% of total sales. Children today are much more likely to be exposed to what one would have considered erotic pornography, ten years ago, yet sexual content in the media almost never includes discussion of the potentially harmful consequences of sexual activity or responsible, safe sex, using contraception.

If it is accepted that the media has played a major role in modern society by shaping attitudes regarding sexual behaviour, and that it has contributed to the early initiations of sexual activity amongst the youth, it can be hypothesized that the media could have a valuable influence in helping to curb unintended pregnancies by promoting responsible, health sexuality and contraception. In France and especially in the Netherlands, the media has a particularly prominent role in achieving lower pregnancy rates (Jones et al, 1985). In North America, public service announcements aimed at unintended pregnancy have generally been rejected as too controversial - with some exceptions (International Planned Parenthood Federation, Youthline 1985). A program model is currently being circulated by

Health & Welfare Canada, recognizes marketing health promotion concepts and messages as one of the six health promotion and disease prevention strategies. It has been suggested that the theme of health and responsible sexuality could be developed into a media awareness campaign, to be undertaken jointly by provincial and federal governments (Adolescent Sexuality, Pregnancy and Motherhood, Department of National Health & Welfare 1985). The Committee on Unplanned Pregnancy in Manitoba already launched such a campaign in May 1985, having received a grant from Manitoba Health.

Manitoba health has already recognized the value of the media in reducing the incidence of teenage pregnancy. In May 1985 Manitoba Health funded a multidisciplinary, multisectorial group, the Committee On Unplanned Pregnancy, to develop media campaigns, support the decision of those who have chosen not to be sexually active yet promote the values, attitudes, and services that would permit those who are sexually active to utilize contraception effectively and reliably. the theme of the current years campaign is "Take Control".

The time may be ripe to harness the power which the media exerts and use it to redirect attitudes, build self-esteem and promote effective communication, in an effort to reduce teenage pregnancy and prevent the occurance of STD.

F. PREGNANCY COUNSELLING

Early non directive counselling with all options discussed is critical from a public health perspective. Early prenatal care is required for optimal birth outcome. Early therapeutic abortion is desirable to reduce morbidity and mortality associated with later procedures.

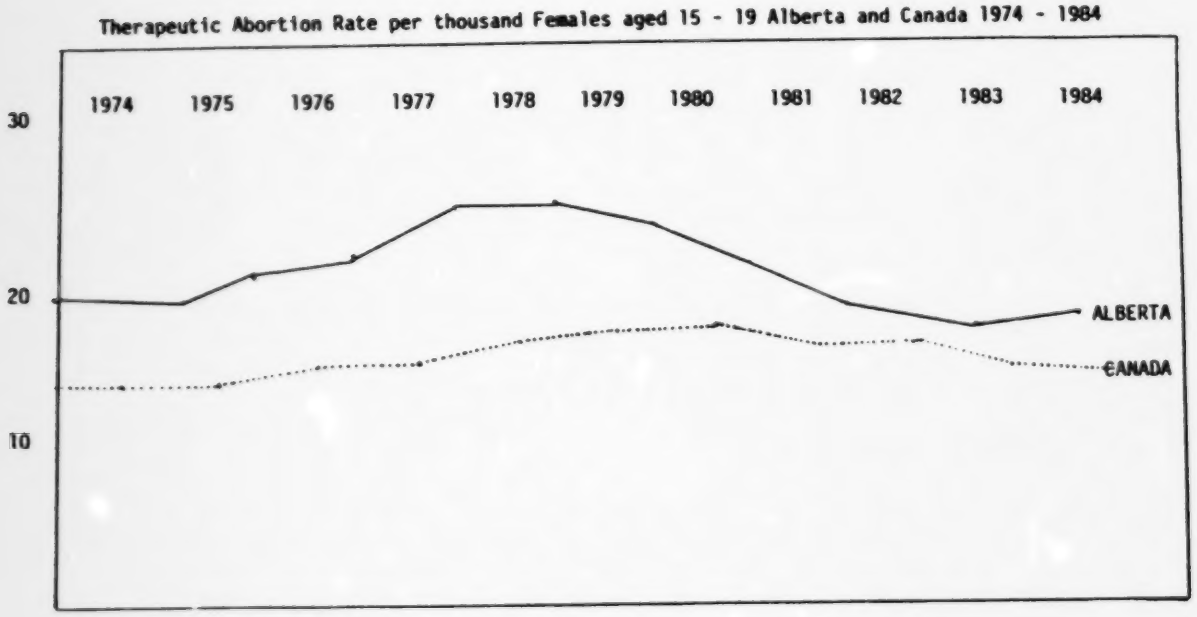
G. ABORTION

Prevention of unwanted pregnancy should clearly be the primary objective for any program planning designed for this province. However, for adolescents faced with an unwanted pregnancy, therapeutic abortion is an alternative that may be considered.

Abortion data is extremely difficult to obtain and it contains many anomalies such as non-reporting of abortions done outside the country or in free-standing clinics.

The therapeutic abortion rate for Alberta women aged 15 - 19 has remained relatively constant since 1974, demonstrating a gradual increase from 18.6 per 1,000 in 1974 to a high of 23.6 per 1,000 in 1980 then declining to 18.1 per 1,000 in 1984. These rates are higher than the rate for all of Canada which, however, showed a similar trend of slight increase followed by a decrease (see Figure 15).

Figure 15.



Source : Statistics Canada

There is a paucity of counselling and support services in Alberta for young women who are seeking abortion. Many of the existing family planning programs provide professional counselling to assist with clarification of alternatives for the young pregnant women. There are also physicians who are prepared to deal sympathetically with women who are exploring alternatives, but access to such physicians is not systematized and in many areas of Alberta such physicians are not available. Voluntary associations such as Planned

Parenthood and women's support groups are similarly confined to larger centres. Therapeutic abortions are permitted only in hospitals with therapeutic abortion committees; there are 21 such hospitals in Alberta.

A women seeking a therapeutic abortion must first find a physician who will perform the procedure, wait until her case is presented and accepted by a therapeutic abortion committee and then wait until a hospital bed is available. More recently in Alberta (November 1986), due to the elimination within the medical system of the opportunity to "balance-bill", there has been a decrease in the number of physicians available to perform abortions.

Abortion in very early pregnancy is considered a safe procedure with a very low complication rate. With difficult access, late abortion (second trimester) becomes more likely. These carry much higher risks.

The gestational ages for women having abortions in Alberta in 1984 are contrasted below with those of Quebec women.

Table 7

Gestational age of women who obtained therapeutic abortions in Alberta and Quebec - 1984

(Source - Statistics Canada)

	Alberta		Quebec	
	Number	% of total	Number	% of total
Less than 9 wks gestation	1354	20%	4460	46%
9 - 12	4466	67%	4090	42%
13 - 16	676	10%	698	7%
17 - 20	162	2%	384	4%
over 20	10	0.1%	88	1%
	6668		9720	

It can be seen that the percent of Quebec women on whom abortions were performed during the safer first nine weeks of gestation is more than twice that of the Alberta women.

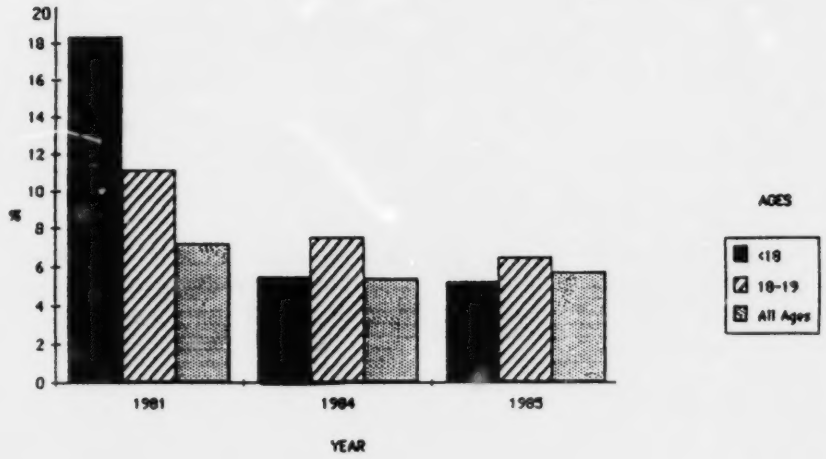
H. EFFECTIVENESS OF SUPPORT SERVICES FOR PREGNANCY

1. Pregnancy Management of p.oven value:

Programs coordinating health services and social support are essential to increase optimal birth outcomes, thereby breaking a cycle of dependency, ensuring continuity in education, and leading to ultimate social independence. An evaluative report for the Louise Dean school (the school for pregnant teens in Calgary) reported an improvement on school attitudes, achievement, social outlook, and birth outcomes (there were no low birthweight infants in the first 46 births in 1986, and the average birthweight of infants of mothers at the school was greater than the community average, which is of births to mothers of all ages (Calgary Health Services unpublished data 1986). As well, with the introduction of perinatal services to the community, as can be seen in Figure 16, a substantial drop in low birthweight, for births to women under age 18 categories, from the years 1981 to 1985, was realized.

Figure 16.

LOW BIRTHWEIGHT BY YEAR AND AGE OF MOTHER
CALGARY



The Calgary statistics showed a low birthweight of 18% among teen mothers under 18 in 1981. This has since been improved by a reduction to just over 5% due to an intervention program.

Special schools for pregnant teenagers provide opportunities for intensive counselling, food supplementation, prenatal classes and education.

Special schools for pregnant teens are an option only for larger cities. Other options exist, including outreach programs (one-to-one and at regular schools).

2. Post Delivery Management of Proven Value:

Seven potential problems areas could be considered for parenting teens : finances, housing, employment, education, child care, loneliness and child caring/parenting assistance.

A brief review of the literature did not uncover Canadian statistics for this report.

Recommendations for services from the Nova Scotia Study, Vulnerable Mothers, Vulnerable Children, indicated that comprehensive services were required for financial support, childcare services, childcare instruction, accommodation, educational and employment services, group support and personal counselling. (MacDonnell, 1981).

Additional research and pilot projects are necessary to determine the risk factors and appropriate interventions.

I. LEGAL ISSUES REGARDING TEEN PREGNANCY

Legal issues arise respecting the counselling of teens regarding abortion and birth control, the issuance of birth control services (pill, intra-uterine device) and the provision of abortion.

The legal controversies have been over the age of consent and informed consent, two inter-related issues.

Alberta does not have statute law which specifically prescribes the age of consent for minors. The common law

(civil) is based on legal precedents of court cases which address the issue of age of consent. Two recent judgments are of significance:

1. The Gillick case, decided by the British House of Lords, recognizes the right of a minor to be provided the birth control pill without the parents' consent.
2. The Toronto Family Court decision in January 1986 refused the application of the Children's Aid Society to assume parental custody of a 12-year old female for whom blood transfusion was deemed necessary. The judge ruled that the child herself had the right to consent to or refuse a treatment and therefore no parental right was available for transfer.

The key to this issue is that a minor must be capable of understanding the nature, purpose and consequences of the procedure. If they do, then they and no one else has the capacity to consent. Only one person has the power to consent; the parent for an infant or the child for themselves if they have sufficient competence.

The other related issue is "informed consent". The Supreme Court of Canada offers the following guidelines to ensure informed consent (based on a 1980 ruling). The following to be communicated to the client.

1. The nature and purpose of the proposed procedure;

2. Probable risks and benefits associated with the procedure, including the probability of serious injury or death;

3. Reasonable alternative medical or surgical procedures or treatment;

4. The risks of foregoing all diagnostic procedures or treatment;

5. The length of time, if any, the patient can postpone the procedure and the probable risks involved in doing so;

6. The probable length of time that the patient will be hospitalized and unable to resume his employment and regular activities;

7. The probable need for follow-up care or additional surgery, radiation treatment or chemotherapy; and

8. The right of the patient to withdraw consent.

From this it is clear that there must be established an open voluntary environment with adequate disclosure of risks and an opportunity to discuss the procedure. Such a sharing must be documented by the provider. Signed consents by themselves are virtually worthless. These guidelines must be observed.

In Alberta, therefore, it is suggested that a worker relating to a minor in matters of birth control and abortion should attempt to, with the minor's consent, involve the parent. If the minor refuses to do this and he/she is competent to understand the procedure or therapy, then provided the provisions of informed consent are complied with, there is no legal impediment to therapy. Institutions may however construct rules about consent. They may not have support in law.

Some lawyers regard this issue as not sufficiently tested in Canadian law and would prefer to see appeals go to higher courts before being 100% certain. Lawyers who have had special experience in this area, however, feel certain about the matter and would support the foregoing analysis.

The recent, December 1986, Alberta Court decision upheld the right of a 16 year old to consent to medical treatment (abortion) with the provision she was aware of the nature and consequences of the act.

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APPENDIX A

TEENAGE BIRTHS IN ALBERTA

1980 to 1985

NUMBER OF LIVE BIRTHS TO TEENAGE MOTHERS IN ALBERTA, 1985

TABLE 1 OF UNIT BY AGE
FOR MARRIED WOMEN

UNIT / FREQUENCY / PERCENT	AGE 12	13	14	15	16	17	18	19	TOTAL
ALBERTA EAST CEN	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	3 0.33	9 0.98	22 2.39	35 3.80
ALBERTA WEST CEN	0 0.00	0 0.00	0 0.00	0 0.00	2 0.22	1 0.11	4 0.43	15 1.63	22 2.39
ATHABASCA	0 0.00	0 0.00	0 0.00	1 0.11	1 0.11	6 0.65	6 0.65	16 1.74	30 3.25
BANFF NATIONAL P	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	0 0.00	1 0.11
BARONS-EUREKA-WA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	5 0.54	9 0.98	15 1.63
BIG COUNTRY	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	3 0.33	5 0.54	8 0.87
CALGARY	0 0.00	0 0.00	0 0.00	0 0.00	5 0.54	22 2.39	42 4.56	109 11.82	178 19.31
CHINOOK	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	4 0.43	2 0.22	11 1.19	17 1.84
DRUMHELLER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	3 0.33	6 0.65	10 1.08
EDMONTON	0 0.00	1 0.11	0 0.00	2 0.22	10 1.08	21 2.28	56 6.07	128 13.88	218 23.64
FOOTHILLS	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	4 0.43	5 0.54
FORT MCMURRAY	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	3 0.33	5 0.54	13 1.41	21 2.28
HIGH LEVEL-FORT	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	1 0.11	3 0.33	16 1.74	21 2.28
JASPER NATIONAL	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.22	2 0.22
LEDUC-STRATHCONA	0 0.00	0 0.00	0 0.00	2 0.22	2 0.22	2 0.22	9 0.98	10 1.08	25 2.71
LETHBRIDGE	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	4 0.43	7 0.76	12 1.30	24 2.60
MEDICINE HAT	0 0.00	0 0.00	0 0.00	0 0.00	3 0.33	6 0.65	5 0.54	20 2.17	34 3.69
MINBURN-VERMILLI	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	1 0.11	0 0.00	5 0.54	7 0.76
MOUNT VIEW	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	4 0.43	1 0.11	10 1.08	15 1.63
NORTHEASTERN ALB	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	2 0.22	10 1.08	10 1.08	39 4.23
PEACE RIVER	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	4 0.43	7 0.76	21 2.28	33 3.58
RED DEER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	5 0.54	16 1.74	28 3.04	49 5.31
SOUTH PEACE	0 0.00	0 0.00	0 0.00	1 0.11	2 0.22	4 0.43	6 0.87	18 1.95	33 3.58
STONY PLAIN-LAC	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.22	6 0.65	16 1.74	24 2.60
STURGEON	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	1 0.11	12 1.30	19 2.06	33 3.58
VEGREVILLE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.22	2 0.22	7 0.76	11 1.19
WETOKA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.11	5 0.54	6 0.65	12 1.30
TOTAL	0 0.00	1 0.11	0 0.00	6 0.65	32 3.47	101 10.95	236 25.60	546 59.22	922 100.00

NUMBER OF LIVE BIRTHS TO TEENAGE MOTHERS IN ALBERTA, 1985

TABLE 2 OF UNIT BY AGE
FOR UNMARRIED WOMEN

UNIT	AGE								
FREQUENCY PERCENT	12	13	14	15	16	17	18	19	TOTAL
ALBERTA EAST CEN	0 0.00	0 0.00	0 0.00	1 0.05	5 0.24	7 0.34	10 0.48	9 0.43	32 1.55
ALBERTA WEST CEN	0 0.00	0 0.00	0 0.00	1 0.05	10 0.48	2 0.10	12 0.58	18 0.87	43 2.08
ATHABASCA	0 0.00	0 0.00	2 0.10	7 0.34	15 0.72	28 1.35	35 1.69	43 2.08	130 6.28
BANFF NATIONAL P	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.10	1 0.05	3 0.14
BARONS-EUREKA-WA	0 0.00	0 0.00	0 0.00	2 0.10	5 0.24	7 0.34	8 0.39	8 0.39	30 1.45
BIG COUNTRY	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.05	2 0.10	0 0.00	3 0.14
CALGARY	0 0.00	1 0.05	3 0.14	14 0.68	43 2.08	85 4.10	96 4.64	125 6.04	367 17.72
CHINOOK	0 0.00	0 0.00	2 0.10	4 0.19	7 0.34	19 0.92	23 1.11	31 1.50	86 4.15
DRUMHELLER	0 0.00	0 0.00	0 0.00	0 0.00	4 0.19	7 0.34	9 0.43	8 0.39	28 1.35
EDMONTON	1 0.05	2 0.10	12 0.58	23 1.11	56 2.70	122 5.89	156 7.53	161 7.77	533 25.74
FOOTHILLS	0 0.00	0 0.00	0 0.00	1 0.05	1 0.05	2 0.10	5 0.24	1 0.05	10 0.48
FORT MCMURRAY	1 0.05	0 0.00	1 0.05	0 0.00	10 0.48	10 0.48	18 0.87	14 0.68	54 2.61
HIGH LEVEL-FORT	0 0.00	0 0.00	0 0.00	5 0.24	5 0.24	9 0.43	11 0.53	12 0.58	42 2.03
JASPER NATIONAL	0 0.00	0 0.00	0 0.00	0 0.00	1 0.05	1 0.05	0 0.00	0 0.00	2 0.10
LEDUC-STRATHCONA	0 0.00	0 0.00	1 0.05	2 0.10	7 0.34	9 0.43	13 0.63	11 0.53	43 2.08
LETHBRIDGE	0 0.00	0 0.00	1 0.05	3 0.14	6 0.29	13 0.63	9 0.43	7 0.34	39 1.88
MEDICINE HAT	0 0.00	0 0.00	1 0.05	4 0.19	2 0.10	19 0.92	8 0.39	14 0.68	48 2.32
MINBURN-VERMILLI	0 0.00	0 0.00	1 0.05	3 0.14	1 0.05	8 0.39	3 0.14	4 0.19	20 0.97
MOUNT VIEW	0 0.00	0 0.00	0 0.00	1 0.05	7 0.34	9 0.43	5 0.24	10 0.48	32 1.55
NORTHEASTERN ALB	0 0.00	0 0.00	1 0.05	4 0.19	12 0.58	23 1.11	24 1.16	25 1.21	89 4.30
PEACE RIVER	0 0.00	0 0.00	1 0.05	6 0.29	10 0.48	17 0.82	27 1.30	22 1.06	83 4.01
RED DEER	0 0.00	0 0.00	2 0.10	5 0.24	10 0.48	27 1.30	28 1.35	36 1.74	108 5.21
SOUTH PEACE	0 0.00	0 0.00	1 0.05	8 0.39	11 0.53	14 0.68	20 0.97	16 0.77	70 3.38
STONY PLAIN-LAC	0 0.00	0 0.00	0 0.00	4 0.19	16 0.77	13 0.63	27 1.30	24 1.16	84 4.06
STURGEON	0 0.00	0 0.00	0 0.00	6 0.29	10 0.48	14 0.68	14 0.68	18 0.87	62 2.99
VEGREVILLE	0 0.00	0 0.00	0 0.00	0 0.00	1 0.05	5 0.24	4 0.19	2 0.10	12 0.58
WETOKA	0 0.00	0 0.00	0 0.00	2 0.10	0 0.00	2 0.10	5 0.24	9 0.43	18 0.87
TOTAL	2 0.10	3 0.14	29 1.40	106 5.12	255 12.31	473 22.84	574 27.72	629 30.37	2071 100.00

NUMBER OF LIVE BIRTHS TO TEENAGE MOTHERS IN ALBERTA
BY AGE OF MOTHER CONTROLLED FOR BIRTH ORDER, 1985

TABLE 1 OF UNIT BY AGE
FIRST ORDER LIVE BIRTHS

UNIT	AGE								
FREQUENCY	12	13	14	15	16	17	18	19	TOTAL
ALBERTA EAST CEN	0	0	0	1	6	10	15	23	55
ALBERTA WEST CEN	0	0	0	1	12	2	14	28	57
ATHABASCA	0	0	2	7	14	28	31	34	116
BANFF NATIONAL P	0	0	0	0	0	0	2	1	3
BARONS-ELDRED A-HA	0	0	0	2	5	8	12	14	41
BIG COUNTRY	0	0	0	0	0	1	5	4	10
CALGARY	0	1	3	14	43	98	118	172	449
CHINOOK	0	0	2	4	7	18	17	29	77
DRUMHELLER	0	0	0	0	3	7	8	13	31
EDMONTON	1	3	12	24	64	127	174	203	608
FOOTHILLS	0	0	0	1	1	2	5	3	12
FORT MCMURRAY	1	0	1	0	9	13	19	16	59
HIGH LEVEL-FORT	0	0	0	5	6	8	10	13	42
JASPER NATIONAL	0	0	0	0	1	1	0	1	3
LEDUC-STRATHCONA	0	0	1	4	9	11	20	15	60
LETHBRIDGE	0	0	1	3	6	12	13	9	44
MEDICINE HAT	0	0	1	4	5	24	13	22	69
MID-CENTRAL-VERMILLI	0	0	1	3	2	9	3	4	22
MIDLAT VIEW	0	0	0	1	7	10	6	18	42
NORTHEASTERN ALB	0	0	0	4	12	19	31	21	87
PEACE RIVER	0	0	1	5	11	15	23	29	84
RED DEER	0	0	2	4	10	28	30	47	121
SOUTH PEACE	0	0	1	9	10	15	24	25	84
STONY PLAIN-LAC	0	0	0	4	13	13	24	22	76
STURGEON	0	0	0	6	11	15	19	24	75
VEGREVILLE	0	0	0	0	1	7	[illegible]	7	21
WETASKA	0	0	0	2	0	3	7	10	22
TOTAL	2	4	28	108	268	504	649	807	2370

NUMBER OF LIVE BIRTHS TO TEENAGE MOTHERS IN ALBERTA
BY AGE OF MOTHER CONTROLLED FOR BIRTH ORDER, 1985

TABLE 2 OF UNIT BY AGE
SECOND ORDER LIVE BIRTHS

UNIT	AGE								
FREQUENCY	12	13	14	15	16	17	18	19	TOTAL
ALBERTA EAST CEN	0	0	0	0	0	0	4	6	10
ALBERTA WEST CEN	0	0	0	0	0	1	2	5	8
ATHABASCA	0	0	0	0	2	6	8	20	36
BANFF NATIONAL P	0	0	0	0	0	0	0	0	0
BARONS-EUREKA-WA	0	0	0	0	0	0	1	3	4
BIG COUNTRY	0	0	0	0	0	0	0	1	1
CALGARY	0	0	0	0	5	7	18	49	79
CHINOOK	0	0	0	0	0	3	6	7	16
DRUMHELLER	0	0	0	0	1	1	4	1	7
EDMONTON	0	0	0	1	2	16	35	69	123
FAIRVILLE	0	0	0	0	0	0	1	2	3
FORT MCMURRAY	0	0	0	0	1	0	4	9	14
HIGH LEVEL-FORT	0	0	0	0	0	2	4	12	18
JASPER NATIONAL	0	0	0	0	0	0	0	1	1
LESUE-STRATHCONA	0	0	0	0	0	0	2	6	8
LETHBRIDGE	0	0	0	0	1	5	2	9	17
MEDICINE HAT	0	0	0	0	0	1	0	10	11
MINBURN-VERMILLI	0	0	0	0	0	0	0	5	5
MOUNT VIEW	0	0	0	0	0	2	0	2	4
NORTHEASTERN ALB	0	0	1	0	0	4	10	17	32
PEACE RIVER	0	0	0	0	0	6	11	10	27
RED DEER	0	0	0	1	0	3	13	16	33
SOUTH PEACE	0	0	0	0	1	3	4	7	15
STONY PLAIN-LAC	0	0	0	0	1	2	7	17	27
STURGEON	0	0	0	0	0	0	7	12	19
VEGREVILLE	0	0	0	0	0	0	0	2	2
WETOKA	0	0	0	0	0	0	3	5	8
TOTAL	0	0	1	2	14	62	146	303	528

NUMBER OF LIVE BIRTHS TO TEENAGE MOTHERS IN ALBERTA
BY AGE OF MOTHER CONTROLLED FOR BIRTH ORDER, 1985

TABLE 3 OF UNIT BY AGE
THIRD ORDER LIVE BIRTHS

UNIT	AGE							
FREQUENCY	12	13	14	15	16	17	18	19	TOTAL
ALBERTA EAST CEN	0	0	0	0	0	0	0	2	2
ALBERTA WEST CEN	0	0	0	0	0	0	0	0	0
ATHABASCA	0	0	0	0	0	0	2	5	7
BANFF NATIONAL P	0	0	0	0	0	0	0	0	0
BARONS-EUREKA-MA	0	0	0	0	0	0	0	0	0
BIG COUNTRY	0	0	0	0	0	0	0	0	0
CALGARY	0	0	0	0	0	0	2	10	12
CHINOOK	0	0	0	0	0	1	2	6	9
DRUMHELLER	0	0	0	0	0	0	0	0	0
EDMONTON	0	0	0	0	0	0	3	14	17
FOOTHILLS	0	0	0	0	0	0	0	0	0
FORT MCMURRAY	0	0	0	0	0	0	0	1	1
HIGH LEVEL-FORT	0	0	0	0	0	0	0	3	3
JASPER NATIONAL	0	0	0	0	0	0	0	0	0
LEDUC-STRATHCONA	0	0	0	0	0	0	0	0	0
LETHBRIDGE	0	0	0	0	0	0	1	1	2
MEDICINE HAT	0	0	0	0	0	0	0	1	1
MINBURN-VERMILLI	0	0	0	0	0	0	0	0	0
MOUNT VIEW	0	0	0	0	0	1	0	0	1
NORTHEASTERN ALB	0	0	0	0	0	1	1	2	4
PEACE RIVER	0	0	0	0	0	0	0	3	3
RED DEER	0	0	0	0	0	0	1	0	1
SOUTH PEACE	0	0	0	0	1	0	0	1	2
STONY PLAIN-LAC	0	0	0	0	1	0	2	1	4
STURGEON	0	0	0	0	0	0	0	1	1
VEGREVILLE	0	0	0	0	0	0	0	0	0
WETCA	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	2	3	14	51	70

NUMBER OF LIVE BIRTHS TO TEENAGE MOTHERS IN ALBERTA
BY AGE OF MOTHER CONTROLLED FOR BIRTH ORDER, 1965

TABLE 1 OF UNIT BY AGE +
FOURTH ORDER OR HIGHER LIVE BIRTHS

UNIT	AGE	
FREQUENCY	19	TOTAL
ATHABASCA	1	1
CALGARY	1	1
CHINOOK	1	1
EDMONTON	2	2
NORTHEASTERN ALB	1	1
PEACE RIVER	1	1
STONY PLAIN-LAC	1	1
TOTAL	8	8

YEAR 1980

FERTILITY AND PREGNANCY INFORMATION 12 - 19 AGE GROUP - ALBERTA

HEALTH UNIT	Population Female	Births Live Still Total	Rate per 1000
Alberta East Central	3,919	89	23
Alberta West Central	2,961	135	46
Athabasca	2,419	136	56
Banff National Park	249	0	0
Barons-Eureka-Warner	3,013	51	17
Big Country	887	19	21
Calgary	39,278	793	20
Chinook	3,054	66	22
Drumheller	2,301	57	25
Edmonton	35,973	880	24
Foothills	2,186	37	16
Fort McMurray	2,442	109	45
High Level-Fort Vermillion	1,043	61	58
Jasper National Park	230	1	4
Leduc-Strathcona	7,373	95	13
Lethbridge	3,799	70	18
Medicine Hat	5,205	146	28
Minburn-Vermillion	2,575	33	13
Mountview	4,034	77	19
Northeastern Alberta	3,571	153	43
Peace River	3,241	134	41
Red Deer	7,929	265	33
South Peace	4,238	154	36
Stony Plain-Lac Ste Anne	4,391	164	37
Sturgeon	6,584	130	20
Vegreville	1,919	38	20
Wetoka	2,763	93	34
Totals	157,577	3986	25

HEALTH UNIT	Population Female	Births Live Still Total	Rate per 1000
Alberta East Central	3,888	90	23
Alberta West Central	2,937	123	42
Athabasca	2,401	130	54
Banff National Park	248	1	4
Barons-Eureka-Warner	2,990	73	24
Big Country	881	11	12
Calgary	38,969	744	19
Chinook	3,032	138	45
Drumheller	2,283	62	27
Edmonton	35,682	1000	28
Foothills	2,169	39	18
Fort McMurray	2,423	118	49
High Level-Fort Vermillion	1,037	82	79
Jasper National Park	229	6	26
Leduc-Strathcona	7,320	99	13
Lethbridge	3,769	77	20
Medicine Hat	5,164	155	30
Minburn-Vermillion	2,556	38	15
Mountview	4,003	81	20
Northeastern Alberta	3,544	143	40
Peace River	3,217	137	43
Red Deer	7,867	261	33
South Peace	4,207	144	34
Stony Plain-Lac Ste Anne	4,360	140	32
Sturgeon	6,535	141	22
Vegreville	1,905	43	23
Wetoka	2,742	111	40
Totals	156,359	4187	27

HEALTH UNIT	Population Female	Births Live	Still	Total	Rate per 1000
Alberta East Central	3,856	109	2	111	29
Alberta West Central	2,916	130	3	133	46
Athabasca	2,384	129	1	130	54
Banff National Park	244	3		3	12
Barons-Eureka-Warner	2,967	64		64	22
Big Country	874	18	1	19	22
Calgary	38,607	860	11	877	23
Chinook	3,009	139	2	141	47
Drumheller	2,268	55		55	24
Edmonton	35,318	968	12	1080	31
Foothills	2,154	34	1	35	16
Fort McMurray	2,408	112	2	114	47
High Level-Fort Vermillion	1,030	74	1	75	73
Jasper National Park	225	5		5	22
Leduc-Strathcona	7,276	99		99	14
Lethbridge	3,730	68		68	18
Medicine Hat	5,120	135		135	26
Minburn-Vermillion	2,534	43		43	17
Mountview	3,974	85		85	21
Northeastern Alberta	3,517	126	1	127	36
Peace River	3,190	137	1	138	43
Red Deer	7,796	250	3	253	32
South Peace	4,171	150	3	153	37
Stony Plain-Lac Ste Anne	4,330	127		127	29
Sturgeon	6,491	111	1	112	17
Vegreville	1,892	23		23	12
Wetoka	2,720	139	1	140	51
Totals	155,000	4193	46	4239	27

HEALTH UNIT	Population Female	Births Live	Still	Total	Rate per 1000
Alberta East Central	3,625	82		82	23
Alberta West Central	2,745	76	1	77	28
Athabasca	2,247	139	1	140	62
Banff National Park	225	2		2	9
Barons-Eureka-Warner	2,797	63		63	22
Big Country	823	21		21	25
Calgary	36,249	585		585	16
Chinook	2,837	99	1	100	35
Drumheller	2,138	49		49	23
Edmonton	33,100	714	5	719	22
Foothills	2,029	36		36	18
Fort McMurray	2,271	92	1	93	41
High Level-Fort Vermillion	974	74	2	76	78
Jasper National Park	210	2	2	4	19
Leduc-Strathcona	6,876	83		83	12
Lethbridge	3,501	54		54	15
Medicine Hat	4,812	108		108	22
Minburn-Vermillion	2,383	33		33	14
Mountview	3,746	69		69	18
Northeastern Alberta	3,312	144	4	148	45
Peace River	3,003	127	2	129	43
Red Deer	7,322	180	3	183	25
South Peace	3,925	122	1	123	31
Stony Plain-Lac Ste Anne	4,083	89	1	90	22
Sturgeon	6,123	98		98	16
Vegreville	1,785	24		24	13
Wetoka	2,562	95	1	96	37
Totals	145,702	3260	25	3285	22

HEALTH UNIT	Population Female	Births Live	Still	Total	Rate per 1000
Alberta East Central	3,771	64	Not available		17
Alberta West Central	2,855	79			28
Athabasca	2,335	93			40
Banff National Park	236	0			--
Barons-Eureka-Warner	2,907	62			21
Big Country	855	16			19
Calgary	37,731	635			17
Chinook	2,949	125			42
Drumheller	2,222	61			27
Edmonton	34,475	846			24
Foothills	2,109	24			11
Fort McMurray	2,360	97			41
High Level-Fort Vermillion	1,011	63			62
Jasper National Park	220	10			45
Leduc-Strathcona	7,142	79			11
Lethbridge	3,645	71			19
Medicine Hat	5,008	115			23
Minburn-Vermillion	2,479	30			12
Mountview	3,894	65			17
Northeastern Alberta	3,445	146			42
Peace River	3,124	135			43
Red Deer	7,621	178			23
South Peace	4,083	114			28
Stony Plain-Lac Ste Anne	4,243	117			28
Sturgeon	6,364	109			17
Vegreville	1,855	26			14
Vetoka	2,664	81			30
Totals	151,602	3441			23

FERTILITY AND PREGNANCY INFORMATION 12 - 19 AGE GROUP - ALBERTA

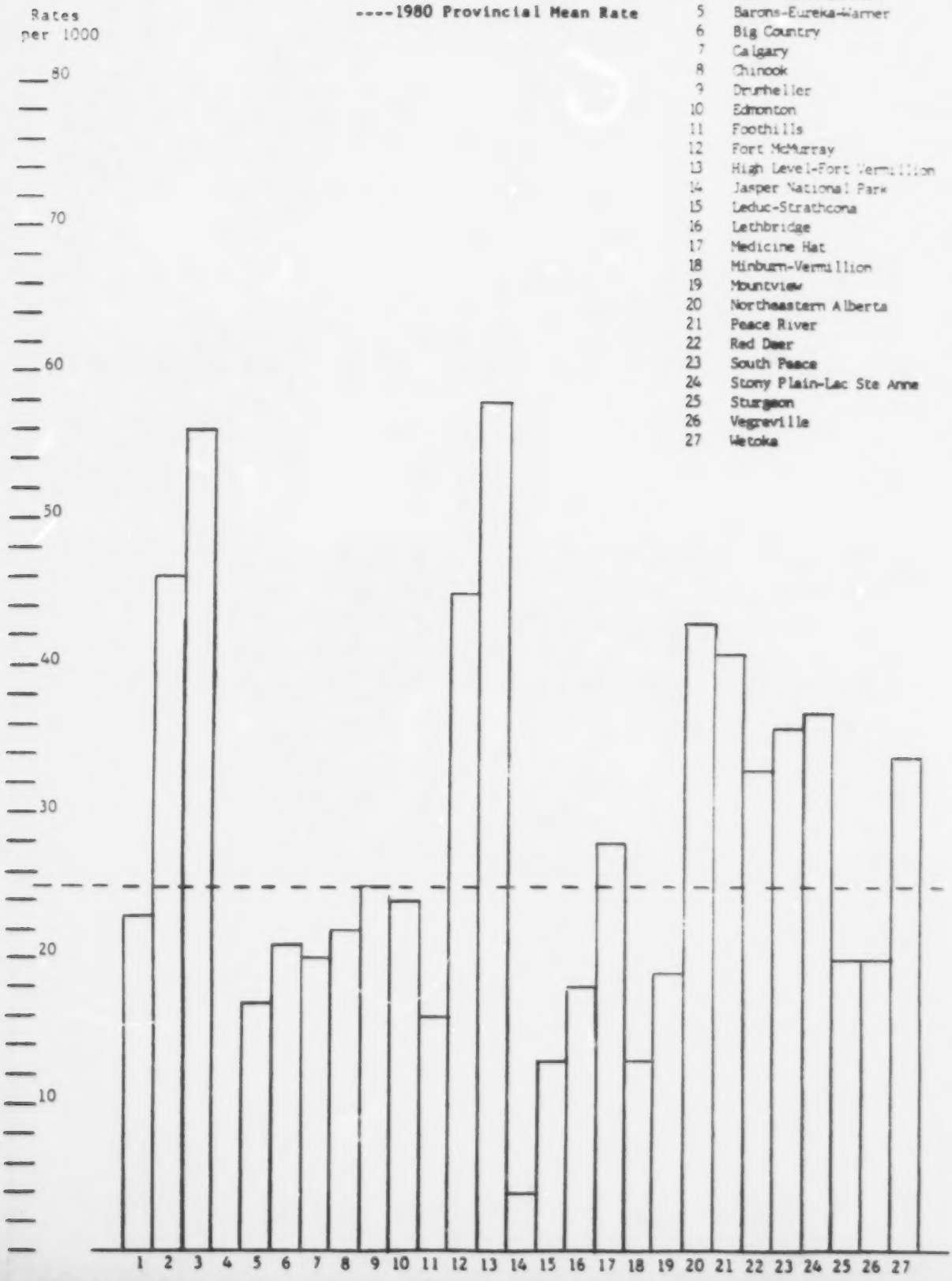
HEALTH UNIT	Population Female	Births Live	Still	Total	Rate per 1000
Alberta East Central	3,505	67		67	19
Alberta West Central	2,653	65		65	24
Athabasca	2,173	160	1	161	74
Banff National Park	218	4	1	5	23
Barons-Eureka-Warner	2,704	45		45	17
Big Country	795	11	5	16	20
Calgary	35,057	545	1	546	16
Chinook	2,743	103		103	37
Drumheller	2,067	38	3	41	20
Edmonton	32,015	751		751	23
Foothills	1,962	15	1	16	8
Fort McMurray	2,195	75		75	34
High Level-Fort Vermillion	942	63		63	67
Jasper National Park	203	4		4	20
Leduc-Strathcona	6,647	68		68	10
Lethbridge	3,386	63		63	19
Medicine Hat	4,654	82	1	83	18
Minburn-Vermillion	2,304	27		27	12
Mountview	3,622	47		47	13
Northeastern Alberta	3,203	128	5	133	41
Peace River	2,904	116	2	118	41
Red Deer	7,081	157	2	159	22
South Peace	3,796	103	2	105	28
Stony Plain-Lac Ste Anne	3,948	108	1	109	28
Sturgeon	5,920	95		95	16
Vegreville	1,726	23		23	13
Wetoka	2,477	30		30	12
Totals	140,902	2993	25	3018 *	21

* [illegible] Annual Report 1985 [illegible] 3084

ALBERTA FERTILITY RATES BY HEALTH UNIT

Ages 12 - 19

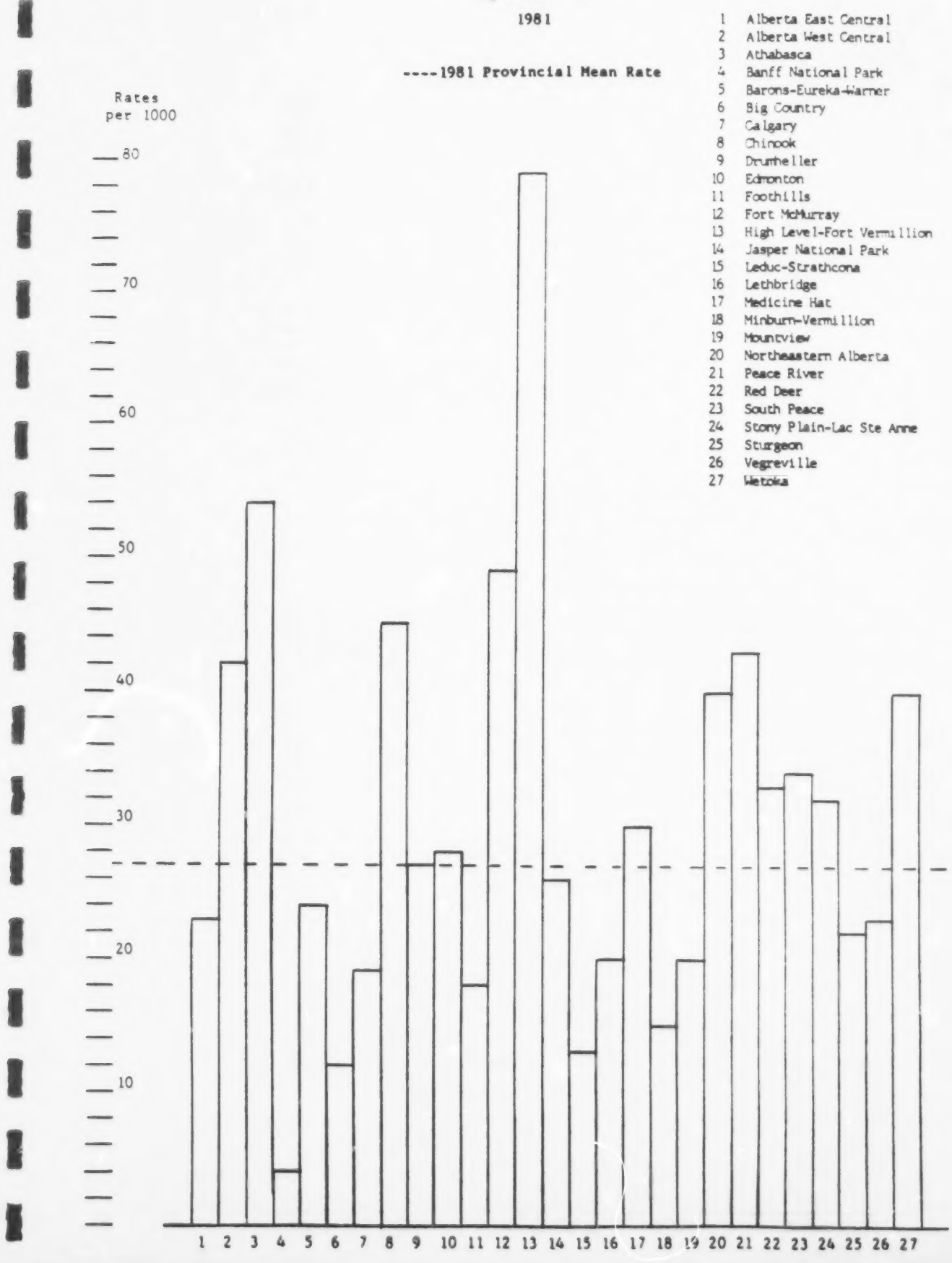
1980



ALBERTA FERTILITY RATES BY HEALTH UNIT

Ages 12 - 19

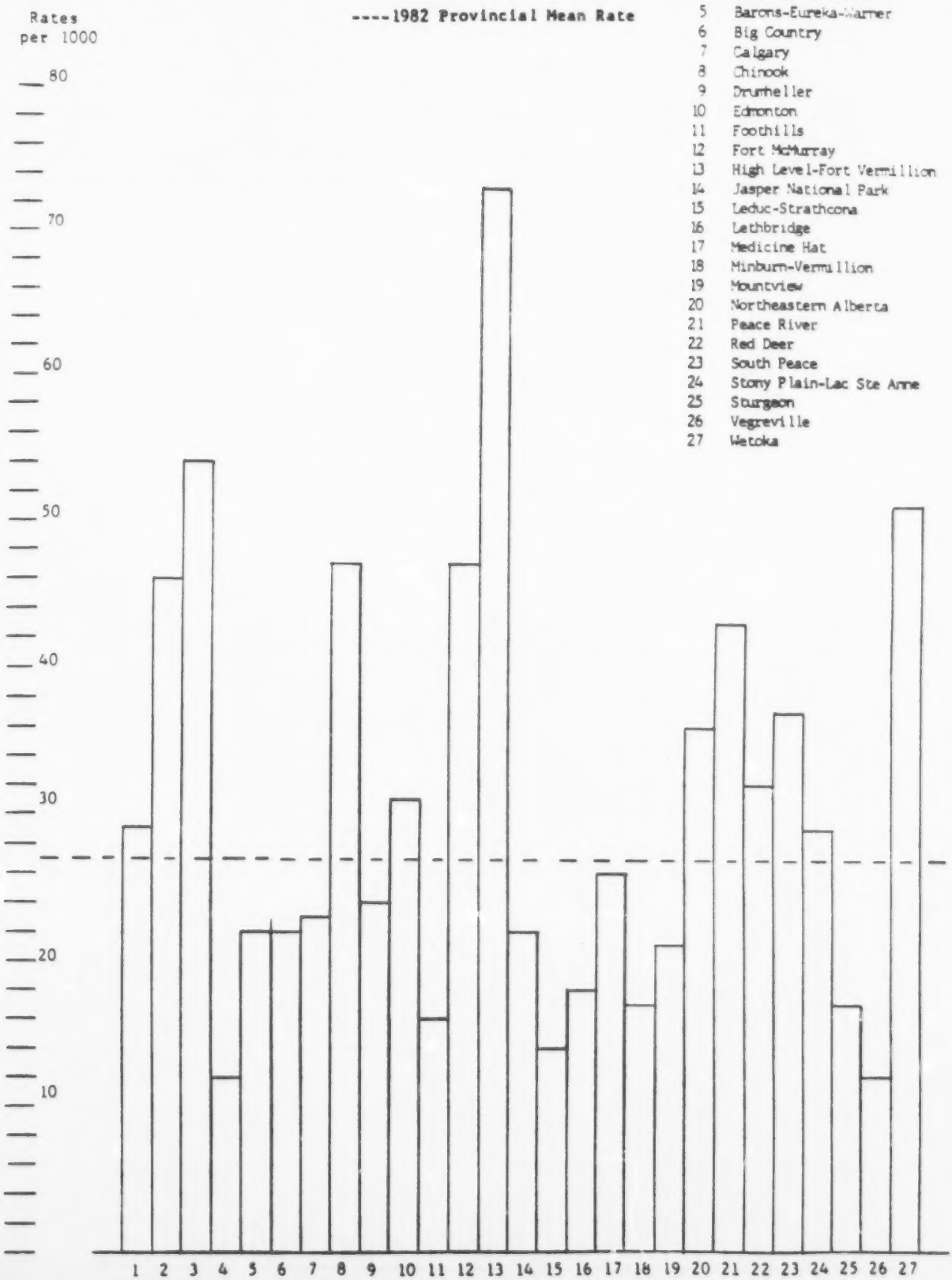
1981



ALBERTA FERTILITY RATES BY HEALTH UNIT

Ages 12 - 19

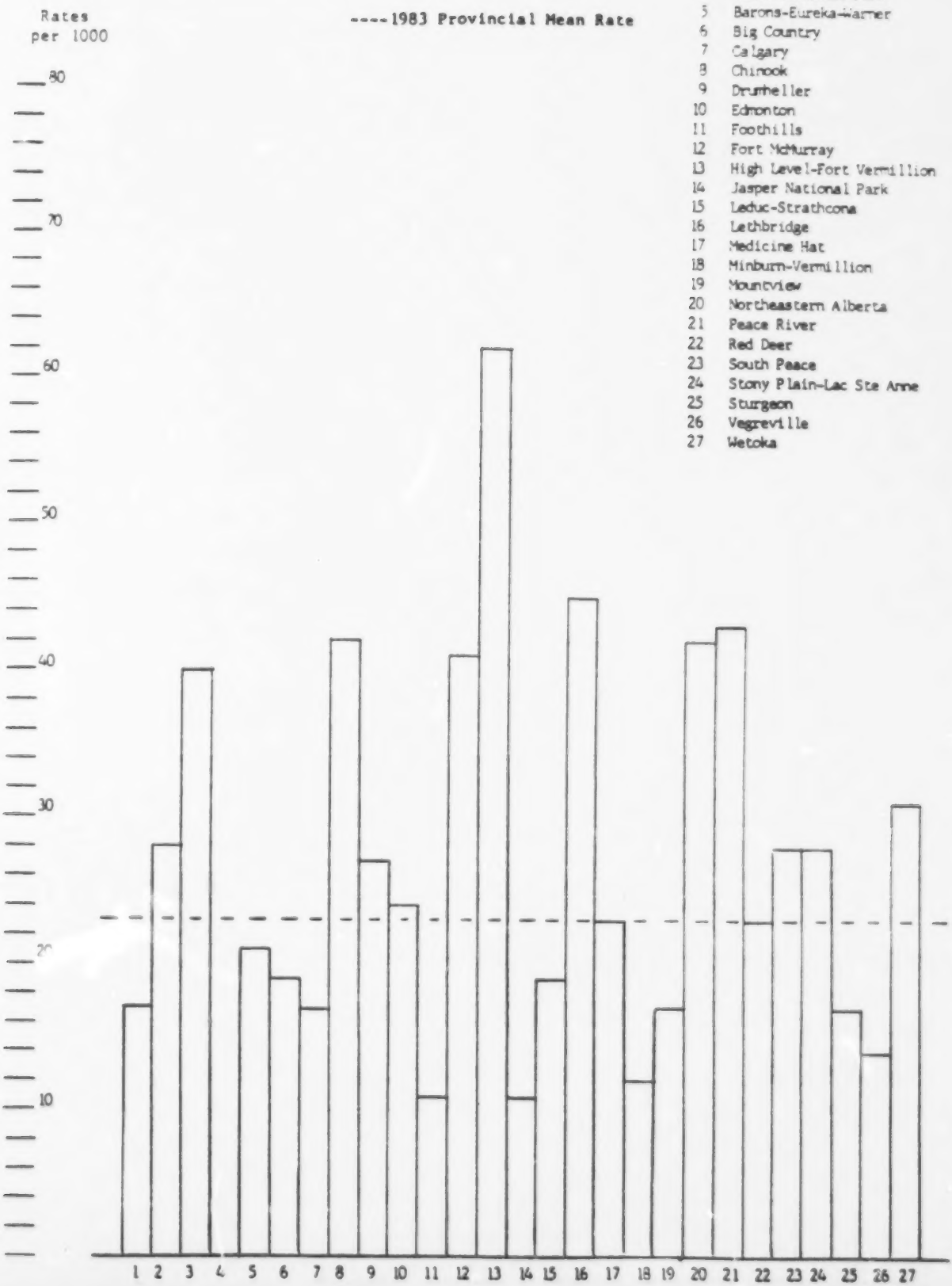
1982



ALBERTA FERTILITY RATES BY HEALTH UNIT

Ages 12 - 19

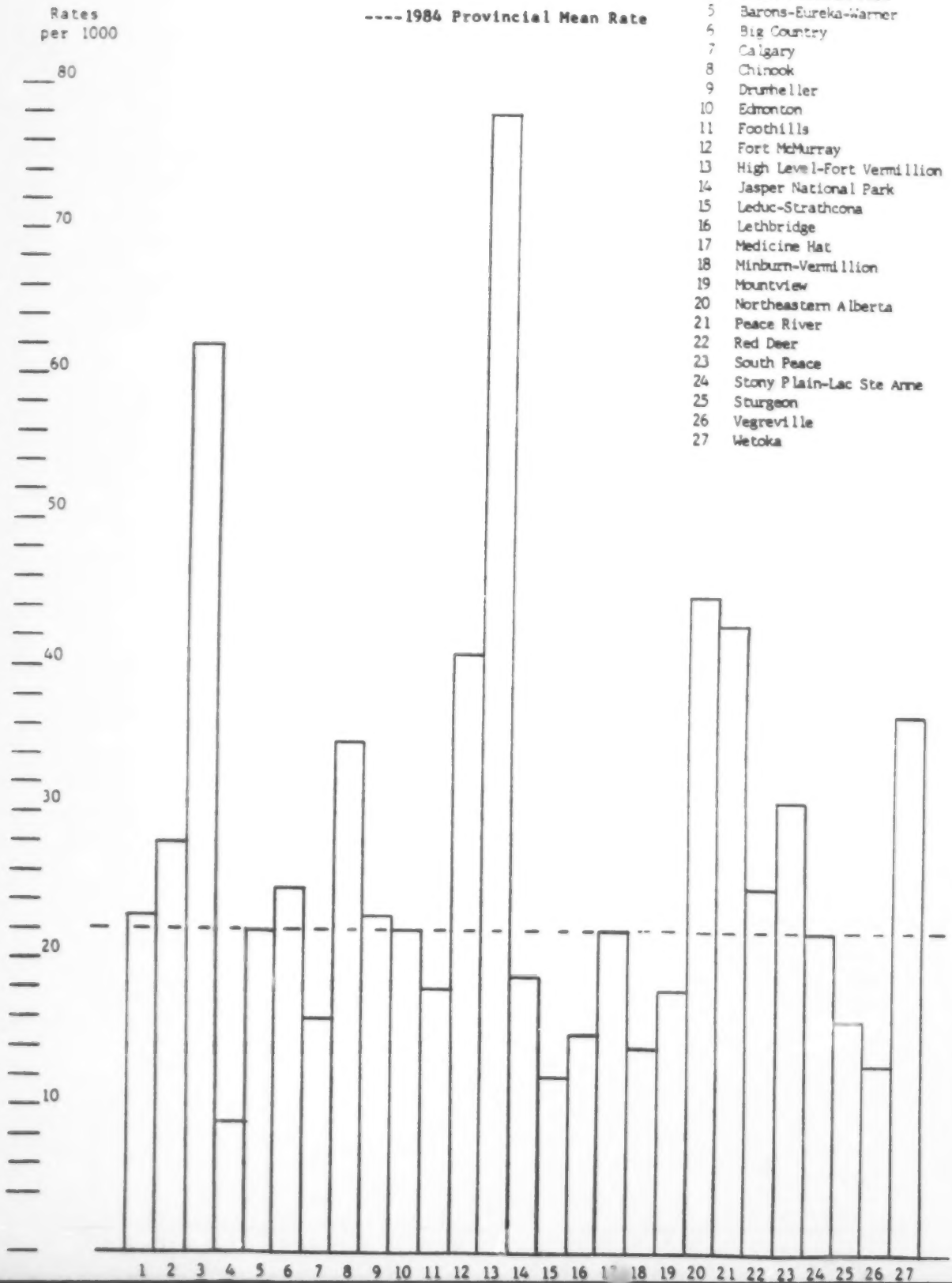
1983



ALBERTA FERTILITY RATES BY HEALTH UNIT

Ages 12 - 19

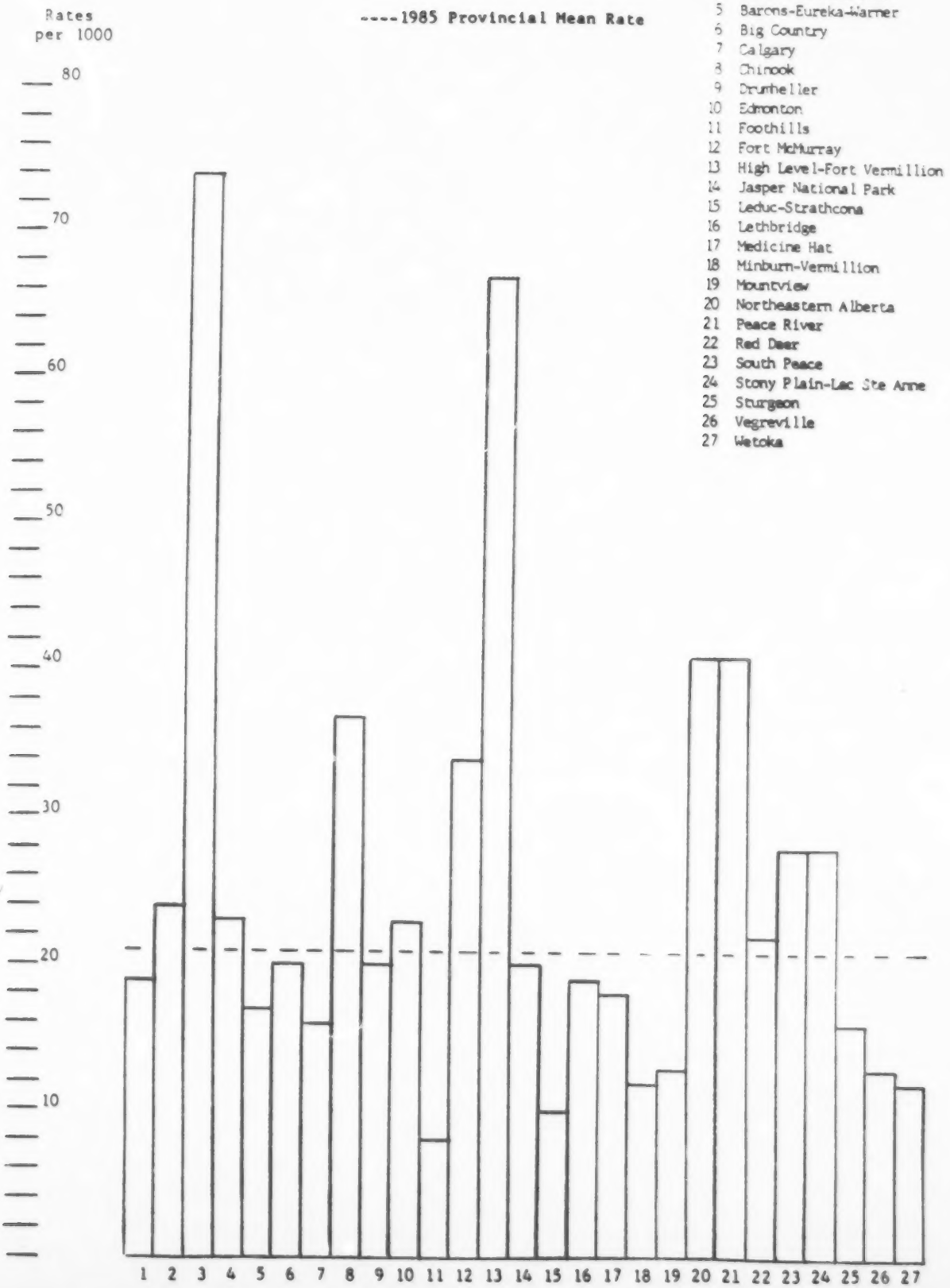
1984



ALBERTA FERTILITY RATES BY HEALTH UNIT

Ages 12 - 19

1985



APPENDIX B

-BIRTHWEIGHT OF TEENAGE MOTHERS, ALBERTA 1985

-STILL BIRTHS, ALBERTA 1985

-ALBERTA POPULATION (12-19 Females) BY LOCAL HEALTH AUTHORITY, 1985

CROSSTAB OF BIRTH WEIGHT TO TEENAGE MOTHERS IN ALBERTA,1985

TABLE 1 OF UNIT BY AGE
CONTROLLING FOR BWEIGHT=
(UNDER 2500 GMS)

UNIT / AGE	12	13	14	15	16	17	18	19	TOTAL
FREQUENCY									
ALBERTA EAST CEN	0	0	0	0	0	0	0	1	1
ALBERTA WEST CEN	0	0	0	0	0	0	3	2	5
ATHABASCA	0	0	0	1	0	2	5	2	10
BANFF NATIONAL P	0	0	0	0	0	0	0	0	0
BARONS-EUREKA-WA	0	0	0	0	1	1	0	2	4
BIG COUNTRY	0	0	0	0	0	1	0	0	1
CALGARY	0	0	1	0	3	5	11	13	33
CHINOOK	0	0	0	0	0	0	1	3	4
DRUMHELLER	0	0	0	0	0	0	1	1	2
EDMONTON	0	0	0	3	6	13	22	15	59
FOOTHILLS	0	0	0	0	0	0	1	0	1
FORT MCMURRAY	0	0	0	0	0	0	2	0	2
HIGH LEVEL-FORT	0	0	0	0	0	1	1	4	6
JASPER NATIONAL	0	0	0	0	0	0	0	1	1
LEDUC-STRATHCONA	0	0	0	0	0	0	0	0	0
LETHBRIDGE	0	0	0	0	0	2	1	0	3
MEDICINE HAT	0	0	0	0	1	1	1	0	3
MINBURN-VERMILLI	0	0	0	2	0	0	1	1	4
MOUNT VIEW	0	0	0	0	0	0	0	1	1
NORTHEASTERN ALB	0	0	0	1	0	0	1	2	4
PEACE RIVER	0	0	0	1	1	3	3	1	9
RED DEER	0	0	1	0	1	1	4	6	13
SOUTH PEACE	0	0	1	1	0	2	1	1	6
STONY PLAIN-LAC	0	0	0	1	1	0	1	2	5
STURGEON	0	0	0	0	0	1	1	4	6
VEGREVILLE	0	0	0	0	0	0	1	0	1
WETOKA	0	0	0	1	0	1	1	3	6
TOTAL	0	0	3	11	14	34	63	65	190

CROSSTAB OF BIRTH WEIGHT TO TEENAGE MOTHERS IN ALBERTA,1985

TABLE 2 OF UNIT BY AGE
CONTROLLING FOR BWEIGHT=
(OVER 2500 GMS)

UNIT / AGE	12	13	14	15	16	17	18	19	TOTAL
FREQUENCY									
ALBERTA EAST CEN	0	0	0	1	6	10	19	30	66
ALBERTA WEST CEN	0	0	0	1	12	3	13	31	60
ATHABASCA	0	0	2	6	16	32	36	57	149
BANFF NATIONAL P	0	0	0	0	0	0	2	1	3
B RONS-EUREKA-WA	0	0	0	2	4	7	13	15	41
BIG COUNTRY	0	0	0	0	0	0	5	5	10
CALGARY	0	1	2	14	45	100	127	218	507
CHINOOK	0	0	2	4	7	22	24	39	98
DRUMHELLER	0	0	0	0	4	8	11	13	36
EDMONTON	1	3	12	22	60	130	190	271	689
FOOTHILLS	0	0	0	1	1	2	5	5	14
FORT MCMURRAY	1	0	1	0	10	13	21	26	72
HIGH LEVEL-FORT	0	0	0	5	6	9	13	24	57
JASPER NATIONAL	0	0	0	0	1	1	0	1	3
LEDUC-STRATHCONA	0	0	1	4	9	11	22	21	68
LETHBRIDGE	0	0	1	3	7	15	15	19	60
MEDICINE HAT	0	0	1	4	4	24	12	33	78
MINBURN-VERMILLI	0	0	1	1	2	9	2	8	23
MOUNT VIEW	0	0	0	1	7	13	6	19	46
NORTHEASTERN ALB	0	0	1	3	12	24	41	38	119
PEACE RIVER	0	0	1	4	10	18	31	41	105
RED DEER	0	0	1	5	9	30	40	57	142
SOUTH PEACE	0	0	0	8	12	16	27	32	95
STONY PLAIN-LAC	0	0	0	3	14	15	32	38	102
STURGEON	0	0	0	6	11	14	25	33	89
VEGREVILLE	0	0	0	0	1	7	5	9	22
WETOKA	0	0	0	1	0	2	9	12	24
TOTAL	2	4	26	99	270	535	746	1096	2778

NUMBER OF STILL BIRTHS IN ALBERTA, 1985

TABLE 1 OF UNIT BY AGE
FOR MARRIED WOMEN

UNIT / AGE	14	15	16	17	18	19	TOTAL
ALBERTA EAST CEN	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
ALBERTA WEST CEN	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
ATHABASCA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
BANFF NATIONAL P	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
BARONS-EUREKA-WA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
CALGARY	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
CHINOOK	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
DRUMHELLER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
EDMONTON	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
FOOTHILLS	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
FORT MCMURRAY	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 33.33	1 33.33
HIGH LEVEL-FORT	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
LEDUC-STRATHCONA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
LETHBRIDGE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
MEDICINE HAT	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
MINBURN-VERMILLI	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
MOUNT VIEW	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
NORTHEASTERN ALB	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
PEACE RIVER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
RED DEER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
SOUTH PEACE	0 0.00	0 0.00	1 33.33	0 0.00	0 0.00	1 33.33	2 66.67
STONY PLAIN-LAC	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
STURGEON	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
VEGREVILLE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
WETOKA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
TOTAL	0 0.00	0 0.00	1 33.33	0 0.00	0 0.00	2 66.67	3 100.00

NUMBER OF STILL BIRTHS IN ALBERTA, 1985

TABLE 2 OF UNIT BY AGE

FOR UNMARRIED WOMEN

UNIT / AGE	14	15	16	17	18	19	TOTAL
ALBERTA EAST CEN	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
ALBERTA WEST CEN	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
ATHABASCA	0 0.00	1 4.55	0 0.00	0 0.00	0 0.00	0 0.00	1 4.55
BANFF NATIONAL P	0 0.00	0 0.00	0 0.00	0 0.00	1 4.55	0 0.00	1 4.55
BAPONS-EUREKA-WA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
CALGARY	0 0.00	0 0.00	0 0.00	2 9.09	0 0.00	3 13.64	5 22.73
CHINOOK	0 0.00	0 0.00	0 0.00	1 4.55	0 0.00	0 0.00	1 4.55
DRUMHELLER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
EDMONTON	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	3 13.64	3 13.64
FOOTHILLS	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
FORT MCMURRAY	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
HIGH LEVEL-FORT	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
LEDUC-STRATHCONA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
LETHBRIDGE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
MEDICINE HAT	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 4.55	1 4.55
MINBURN-VERMILLI	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
MOUNT VIEW	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
NORTHEASTERN ALB	0 0.00	0 0.00	1 4.55	1 4.55	0 0.00	3 13.64	5 22.73
PEACE RIVER	0 0.00	1 4.55	0 0.00	0 0.00	0 0.00	1 4.55	2 9.09
RED DEER	0 0.00	0 0.00	0 0.00	1 4.55	0 0.00	1 4.55	2 9.09
SOUTH PEACE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
STONY PLAIN-LAC	0 0.00	0 0.00	1 4.55	0 0.00	0 0.00	0 0.00	1 4.55
STURGEON	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
VEGREVILLE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
WETOKA	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
TOTAL	0 0.00	2 9.09	2 9.09	5 22.73	1 4.55	12 54.55	22 100.00

1985 ALBERTA FEMALE POPULATION BY LOCAL HEALTH AUTHORITY

LHA	POP12	POP13	POP14	POP15	POP16	POP17	POP18	POP19	SUMAGES
ALBERTA EAST CENTRAL	410	410	435	433	428	440	463	487	3,505
ALBERTA WEST CENTRAL	327	327	347	318	314	323	339	357	2,652
ATHABASCA	278	278	295	254	251	259	272	286	2,173
BANFF NATIONAL PARK	10	10	11	36	36	37	33	40	210
BIRCH-EUREKA-WARNER	342	342	363	318	315	324	340	359	2,704
BIG COUNTRY	98	98	104	95	94	97	102	107	795
CALGARY	3,864	3,864	4,101	4,467	4,416	4,543	4,773	5,028	35,057 / 27430
CHINOOK	351	351	372	321	317	326	343	361	2,743
CROWFOOT	268	268	284	240	237	244	256	270	2,067
EDMONTON	3,247	3,247	3,446	4,245	4,197	4,318	4,536	4,779	32,015
FOOTHILLS	249	249	264	231	228	235	247	260	1,963
FORT MCMURRAY	288	288	306	252	250	257	270	284	2,195
HIGH LEVEL-FORT VERM	134	134	143	102	101	104	109	115	946
JASPER NATIONAL PARK	17	17	18	29	29	30	31	33	203
LEDUC-STRATHCONA	935	935	992	728	720	741	778	820	6,647
LETHBRIDGE	359	359	381	440	435	447	470	495	3,386
MEDICINE HAT	539	539	572	578	571	588	617	650	4,654
MILDRED-VERMILLION	271	271	288	283	280	288	303	319	2,304
MOUNT VIEW	465	465	493	423	418	430	452	476	3,622
NORTHEASTERN ALBERTA	400	400	425	380	376	387	406	428	3,203
PEACE RIVER	351	351	372	352	348	358	376	396	2,904
RED DEER	794	794	843	894	884	910	956	1,007	7,081
SOUTH PEACE	456	456	484	461	456	469	493	519	3,796
SOUTH PLAIN-LAC STE.	521	521	553	452	447	460	483	509	3,948
STURGEON	788	788	837	674	667	686	721	759	5,920
VEGREVILLE	229	229	243	197	195	201	211	222	1,726
WETCAA	308	308	327	295	292	300	315	332	2,477
	16,300	16,300	17,300	17,501	17,301	17,801	18,701	19,701	140,902

APPENDIX C

REPORT TO MEETING OF DIRECTORS'
COMMITTEE ON TEENAGE PREGNANCY
September, 1986

The Committee on Teenage Pregnancy of the Meeting of Directors requested assistance with the collection of information needed by the Committee. The Committee is interested in the services provided to pregnant adolescents from thirteen through seventeen years of age in Alberta. Specifically, the Committee requested the names of:

a) health units with formal pregnancy counselling and support services, such as expectant parents' classes, parenting groups, etc.; and
b) voluntary agencies by health unit area offering education and/or counselling services.

These services include both those services offered to all expectant parents including pregnant adolescents as well as those services directed toward pregnant adolescents in particular.

In total, 26 of 27 health units responded to the request.

1. HEALTH UNIT SERVICES

QUESTION: Does your health unit provide services to pregnant adolescents? (e.g., health education, health counselling, expectant parents' classes, parenting groups)

RESPONSE: 25 YES
1 NO Mount View

QUESTION: If yes, indicate what services are provided and how formal the arrangements are. (e.g., through agency policy, practice and procedure manuals)

RESPONSE:

REGULAR PRENATAL CLASSES AND INDIVIDUAL COUNSELLING AND EDUCATION PROVIDED BY:
- (Individual counselling is often as the teens prefer not to attend regular classes).

° ALBERTA WEST CENTRAL

° BANFF
-Due to few adolescent pregnancies in the area we do not offer a prenatal class specifically for them.

- BARONS-EUREKA WARNER
  -Or are referred to the City of Lethbridge Health Unit with whom we have a formal arrangement to include pregnant teens from our area in their single mom classes.

- BIG COUNTRY
  -Adolescents are invited to our regular prenatal classes but usually will be seen on a one-to-one basis to review prenatal information; counselling as appropriate. Usually the CHN works closely with others involved - parents, doctor, teachers, social workers.
  -Arrangements for seeing them is informal with verbal referrals received from schools, social services or parent/teenagers themselves.

- CALGARY
  -Calgary Health Services has a special division with a Director and staff of CHNs and nutritionist who have targeted this particular population. Services provided include individual case management, small and large group education sessions on prenatal health, labour and delivery. Co-programming with Social Services and Education (Louise Dean Schools for antenatal and postnatal and infants) is carried out regularly.

- CHINOOK
  -Individual basis is upon request either by the individual or local physician.

- DRUMHELLER
  -Referrals are accepted from doctors, friends or the individuals themselves. Liaison is kept with social services if involved.

- EDMONTON
  -Formal pregnancy counselling is done on a one to one basis for any single mother who requests information on pregnancy or prenatal classes. This is done by referral to clients' district nurse.
  -Pregnant single women are given the option of attending regular prenatal classes and about 50% choose to do so.
  -PHN's in high school do health education routinely and preconception education on request.
  -Parenting education is done in several health centres and single women are included in all of these groups.

- FOOTHILLS
  -Referral by doctor for individual counselling.

- FORT McMURRAY AND DISTRICT
  -Group presentations are done in conjunction with the local schools.
  -Parenting classes are based on individual need.

- HIGH LEVEL-FORT VERMILION
  -Postnatally all teen moms receive one or more home visits as required by each individual.

- JASPER
  -Because our Health Unit is so small we deal with each case individually.

- LEDUC-STRATHCONA

- MINBURN-VERMILION
  -Individual counselling is at school, office, or home as preferred by the individual. We are available for any information or printed material.

- PEACE RIVER
  -Individual counselling is done wherever the teens can best be accommodated (i.e. school or home).
  -Regular postnatal classes are generally attended by teens.
  -Are placed on At Risk Registry, which ensures extra routine home visits.
  -Home visiting intensive for teens with problems.

- STONY PLAIN-LAC STE. ANNE
  -Individual counselling and education if required in office, school, home setting. Done on request and need, no formal policy.

- RED DEER
  -Prenatal classes to all expectant parents at Rocky Mountain House suboffice and Lacombe suboffice only. Do not hold prenatal classes in Red Deer or Innisfail. Would do individual counselling for those felt to be at risk.

- STURGEON
  -Programs are generally informal and on a one-to-one basis.

- VEGREVILLE
  -Services provided on an individual basis, and usually by request. Postnatal education not in formalized classes. Arrangements very informal usually - adolescent contacts the the health unit.

- WETOKA
  -Pregnant adolescents rarely do attend regular prenatal class, although they are invited.

INDIVIDUAL COUNSELLING AND EDUCATION ONLY BY:

- ALBERTA EAST CENTRAL
  -Prenatal counselling and education to individual contacts. Have a course outline. Due to population, teaching is often on a one-to-one basis. If possible like to include them as a group in a class setting.
  -Plan to have group starting in September in the city in our health unit, in conjunction with Camrose District Support Services.

- NORTH EASTERN ALBERTA
  -Also do health education and human sexuality in high schools. Agreement with the schools.

SPECIAL PROGRAMS BY:

- LETHBRIDGE
  -Singles prenatal classes, postnatal classes, individual counselling as required - in the home or Health Unit, sexuality counselling (through family planning groups), postpartum home visiting, hereditary disease counselling when indicated. All are through agency policy, program guidelines and procedure manuals.

- MEDICINE HAT
  -We have 3 or 4 sets (yearly) of expectant parent classes for the single moms (on a need basis). These can be difficult to plan. The prenatal educator works closely with one social worker who has the single moms on her caseload.

- SOUTH PEACE
  -Since December 1985 (when the Pregnant Teen Program began) the health unit has provided Teen Early Bird Classes and Teen Postnatal Classes. A Community Health Nurse Liaison is assigned to this program and does initial interviews (i.e. nutrition/health assessments) and coordinates classes. The teens are fit into the regular Prenatal Classes (Daytime Mom's only, or evening Couple Classes).
  -"Options Counselling" is done by Sexuality Education and Family Planning Department of the Health Unit early in the pregnancy. Exact agency policy has not been formalized since it is new; however, procedures are in draft form.

OUTREACH COMPONENT BY:

- ALBERTA WEST CENTRAL
  -Seek out any pregnant adolescent that we become aware of and offer services.

- HIGH LEVEL - FORT VERMILION
  -Most that the Health Unit becomes aware of are contacted and made aware of services available to them.

2. VOLUNTARY AGENCY SERVICES

QUESTION: Do any voluntary agencies in your health unit area offer education and/or counselling services to pregnant adolescents?

RESPONSE: 12 YES
14 NO

QUESTIONS: If yes, list the names of the voluntary agencies and indicate the service(s) provided:

RESPONSE:

° ALBERTA WEST CENTRAL
-"Birth Right" services provided:
-Free pregnancy test
-Home for Mom before and short time after delivery
-Counselling (lay people)
-Supply clothing for mother and baby
-Refer to other agencies (e.g. Social Services for long term financial support).

° BANFF
-F.C.S.S. for pregnancy counselling and support.

° CALGARY
-Teen aid
-Birthright
-Pregnancy Crisis Centre
-Calgary Birth Control
} All give counselling and referral when appropriate.

Funded agencies are:
-Catholic Family Services
-Providence Child Development Centre
-YWCA
-Calgary Integrated Services
-Salvation Army
The Salvation Army and Providence Child Development Centre provide residential accommodation.

° EDMONTON
-Terra
-Woodside Home
-Pregnancy Help
-New Beginnings
-The Parent Centre
-Planned Parenthood
-The Edmonton Pregnancy Crisis Centre
-EBH Birth Control Clinic
-Edmonton International Childbirth Educators
-All five hospitals

I could not begin to suggest the services offered by these agencies except Terra.

- FORT McMURRAY AND DISTRICT
  -Birthright - consultation services in regards to prenatal opportunities, nutritional guidelines, safety.

- JASPER
  -Included a brochure that FCSS drew up last year in cooperation with Community Services, the Health Unit, the Junior and Senior High School, Social Services, doctors, Mental Health Services, and ministers. It has been distributed throughout the community.

- LETHBRIDGE
  -Teenaid
  -Birthright } counselling of unwed mothers
  -Crisis line
  -Parents' Place - parenting information
  -Services are available through two counselling agencies: HEAD Consultants and Lethbridge Family Services.

- MEDICINE HAT
  -Various churches
  -Pro Life group - "Pregnancy Support Service"

- RED DEER
  -Birthright
  -Singles prenatal classes - Red Deer Regional Hospital (non-voluntary)
  -Mecca Information Servies - not designed specifically for pregnant adolescents; offer group counselling for teens.

- SOUTH PEACE
  -"Prolife Group" offers individual counselling to the pregnant teen and will often offer accommodation (often free) during the pregnancy
  -Grande Prairie Childbirth Education Association will take Teens for their prenatal classes; however, it's rare since they charge more for their classes than the Health Unit.
  -Crisis Line - which is a Volunteer Crisis Intervention Telephone Service.

- STURGEON
  -Pregnancy Help
    -pregnancy testing
    -prenatal classes
    -clothes and furniture
    -money management
    -mothers support groups
    -counselling

- VEGREVILLE
  -The "Caritas Centre" - a home for unwed young mums is planned for the town of Vegreville. (We think it is opening August 1st.) We are unsure yet what services they will be able to provide other than room and board.
  -Regarding "voluntary" nature - residents will pay for room and board but this may be waived in cases of need. Centre to be run by the Sisters of Charity and the Knights of Columbus.

The following Health Units responded NO, with these comments:

- HIGH LEVEL-FORT VERMILION
  -There is a parent support group (post-natal only) that meets weekly. This is not geared specifically to adolescents, but all new moms are welcomed. When requested by the group, a CHN does go and talks about parenting, growth and development, nutrition, etc

- LEDUC-STRATHCONA
  -Often we get referrals from F.C.S.S., Social Services, or schools to see pregnant teens. The problem is identification; we are working more closely with family physicians to correct some of this, i.e. encourage more referrals.

3. HEALTH UNIT LIAISON WITH VOLUNTARY AGENCIES

QUESTION: Does your health unit have formalized arrangements with any of these voluntary agencies? (e.g., CHN's provide services to clients of voluntary agencies)

RESPONSE: 7 YES
5 NO
14 N/A (If the answer was no to question 2, then question 3 was not applicable)

QUESTION: If yes, indicate which voluntary agencies and specify the type of arrangement.

RESPONSE:

- BANFF
  -If deemed necessary the pregnant adolescent is referred to us for continuing health education, etc.

- CALGARY
  -We provide nursing service for teaching and counselling to the YWCA clients and the Louise Dean School students. Also, we teach prenatal classes to high risk and single moms including teens at Calgary General Hospital and our own perinatal office.

- EDMONTON
  -Services are provided at Terra, a combined resource agency serving women who conceive out of wedlock. Prenatal and child development classes are offered by public health nurses as well as weekly infant and preschool clinics. All three services are directed by EBH policies, practices and pertinent procedural manuals.

- FORT McMURRAY AND DISTRICT
  -Yes, but formalized only in the sense that our clients are common ones and that they (Birthright) are aware that either they or the client may contact us re: prenatal classes, safety of the newborn, nutrition.

- JASPER
  -FCSS

- LETHBRIDGE
  -Parents' Place

- VEGREVILLE
  -We're not quite sure yet how this is going to happen. We've (CHN) been asked to provide pre- and post-natal backing [to the Caritas Centre], and have agreed to do so to the extent allowed by our resources. If the home accepts adolescents from all over this Northeast section of the province, we may not be able to supply the services.

The following Health Units responded NO, with these comments:

- LEDUC-STRATHCONA
  -No, except referral mechanisms.

- MEDICINE HAT
  -No, but we do refer to each other on a need basis.

- NORTH EASTERN ALBERTA
  -We have a working agreement with F.C.S.S. and have been a guest lecture at their adolescent workshops.

- SOUTH PEACE
  -Not formalized. We welcome any concerns in this regard, but most often all Teen Pregnancy referrals are directed to the Coordinator of the "Pregnant Teen Program". This program is funded by the Grande Prairie Public and Separate School Boards with support from the Health Unit, Social Services, Mental Health Services and FCSS.

Prepared by: Diane McHutchion,
Karen Titanich
on behalf of the
Standing Committee on
Community Health Nursing

September 1986

APPENDIX D

COST/BENEFIT ANALYSIS

In our first report we offered a cost comparison for the year 1978 and additional data can now be included. Comparison of expenditures on preventive public health family planning services with the sum of expenditures on abortion services to adolescents and Welfare and Family Benefit payments to adolescent sole-support mothers, results in a cost/benefit ratio of 1:10. That is to say, for every family planning dollar spent in 1978 via public health units to prevent pregnancy amongst adolescents, we spent ten dollars on three of the immediate costs of adolescent pregnancy -- abortion services, short-term and longer-term income maintenance to adolescent sole-support mothers.

Since approximately half the public health family planning clientele were adolescents, half the preventive budget was $1.35 million. Abortion expenditures for adolescents were $2.2 million. Family Benefits were $6.8 million. General Welfare Assistance was $4.5 million. Total expenditures on selected consequences thus amounted to $13.5 million.

These three service needs are only the tip of the iceberg of the multiple health and welfare costs of adolescent pregnancy. Other costs are either difficult to calculate or not readily available: childbirth costs (due to varying needs in pre-natal care and post-natal care); adoption costs; extra demands upon health care services for mother and child (MacDonnell 1981: 220-238); foster care; day care; counselling; group support programmes teaching life skills, home-making, and child care; job retraining; et al. A more comprehensive United Kingdom study estimated a cost/benefit ratio of 1:128 concerning the child of an unmarried mother of any age (Laing, 1972).

Another approach in cost/benefit analysis is to estimate the number of adolescent pregnancies avoided over the years of a prevention policy by subtracting the sum of the actual number of pregnancies occurring annually, from the number that would have occurred if the first known rate (55.4 in 1975) had continued each succeeding year rather than declining. By this method, 21,623 adolescent pregnancies were avoided between 1976 and 1983, which is very close to the number we actually did have in 1975 (21,687). In effect, since the initiation of family planning policy in Ontario, the equivalent of a whole year's incidence of adolescent pregnancy has been prevented.

Distribution of these 21,623 prevented adolescent pregnancies is as follows (based on annual percentages):

Pregnancies to young teens (age 16 and under)....	4,068
Abortions to adolescents.....	10,096
Total births to adolescents (and interruption of education or employment).....	11,537
Births to single adolescents.....	6,023
Adolescent single-parents (est. 85% of above)....	5,119

Prevention of adolescent pregnancy, as documented above, represents an immeasurable saving in personal tragedy, constraints on community, and both personal and public financial costs.

In terms of public expenditures, we estimate $41.4 million would have been spent on abortions, births, General Welfare and Family Benefit payments (for one year only) to adolescent sole-support mothers -- based on annual distribution of pregnancy outcomes and costs. During that period, public health family planning services have spent $16.4 million for adolescent clients. Consequently Ontario adolescents saved $25 million on only a few of the short-term consequences. In addition, they learned from preventive programmes some important life skills in relationships and problem-solving -- they spared themselves a major life crisis -- remained available to continue their education and develop employment skills -- and gave themselves more time to mature before embarking on parenthood. Clearly, all three Ministries could establish a special budget for prevention of adolescent pregnancy and still save money.

These findings have important implications for the federal government as well as provincial governments. The federal government pays a large share of insured health care services under the Canada Health Act, and 50% of public health family planning services, General Welfare Assistance payments, and Family Benefit payments under the Canada Assistance Plan. The federal government could greatly reduce its overall expenditures on the consequences of adolescent pregnancy by increasing its funding of preventive activities -- rather than its current policy and funding retreat.

SOURCE:
Adolescent Pregnancy in Ontario : Progress in Prevention:
Orton, Maureen and Rosenblatt, Ellen.
McMaster University, Report No. 2, February 1986. P 126 - 127

APPENDIX E

TABLE 6. Teenage Therapeutic Abortion Rates(1) per 1,000 Females Aged 15-19 Years, by Province, Canada, 1974-1984

TABLEAU 6. Taux d'avortement thérapeutique(1) pour 1,000 adolescentes de 15 à 19 ans, par province, Canada, 1974-1984

Province	1974	1975	1976	1977	1978	1979
	Rates per 1,000 females under 20 years Taux pour 1,000 femmes de moins de 20 ans					
Canada	**13.6**	**13.7**	**14.6**	**15.3**	**16.3**	**17.0**
Newfoundland - Terre-Neuve	1.5	1.7	5.0	6.6	6.2	8.0
Prince Edward Island - Ile-du-Prince-Édouard	3.3	6.1	3.9	2.7	2.9	3.2
Nova Scotia - Nouvelle-Écosse	9.8	9.4	11.5	11.7	12.7	13.3
New Brunswick - Nouveau-Brunswick	4.9	4.8	4.4	4.2	4.8	4.9
Québec	3.0	3.6	6.5	4.7	5.0	5.9
Ontario	19.7	19.6	20.5	20.9	21.6	22.6
Manitoba	10.6	9.4	9.9	10.8	12.8	10.8
Saskatchewan	11.8	12.8	10.8	11.5	14.3	14.1
Alberta	18.6	18.4	20.1	21.3	24.1	24.2
British Columbia - Colombie-Britannique	29.9	28.5	28.9	31.5	32.2	32.3
Yukon	23.3	26.0	23.0	30.9	23.6	29.2
Northwest Territories - Territoires du Nord-Ouest	16.1	15.8	14.3	13.6	15.4	19.0
	1980	1981	1982	1983	1984	
	Rates per 1,000 females under 20 years Taux pour 1,000 femmes de moins de 20 ans					
Canada	**16.9**	**16.2**	**16.2**	**14.7**	**14.7**	
Newfoundland - Terre-Neuve	6.2	5.3	5.2	5.2	4.4	
Prince Edward Island - Ile-du-Prince-Édouard	2.0	1.4	1.5	0.3	0.7	
Nova Scotia - Nouvelle-Écosse	14.0	13.5	14.2	12.9	13.2	
New Brunswick - Nouveau-Brunswick	5.4	4.9	2.5	3.0	2.5	
Québec	6.2	6.4	6.9	6.6	7.2	
Ontario	22.8	21.9	22.6	20.2	19.6	
Manitoba	10.6	11.1	11.8	10.9	14.7	
Saskatchewan	13.7	13.5	12.6	11.0	10.4	
Alberta	23.6	20.9	18.4	17.4	18.1	
British Columbia - Colombie-Britannique	30.2	29.5	27.8	23.8	22.7	
Yukon	30.0	30.0	31.0	37.8	20.0	
Northwest Territories - Territoires du Nord-Ouest	15.4	23.2	30.4	23.5	24.6	

(1) Rates based on all therapeutic abortions under 20 years and female population 15-19 years.
(1) Les taux sont basés sur tous les avortements thérapeutiques chez les moins de 20 ans et sur la population féminine de 15 à 19 ans.

TABLE 9. Reported Legal Abortions(1) for Canadian Residents Performed in Different States of the United States, 1971-1984

TABLEAU 9. Avortements légaux(1) subis par des résidentes canadiennes dans différents états des États-Unis, 1971-1984

Name of States (city) Noms des états (ville)	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
All reported States - Tous les états déclarants	6,109	6,573	5,501	4,299	4,394	4,234	2,900	1,802	1,073	1,644	2,651	4,311	3,983	3,484
(New York City) - (Ville de New York)	3,849	4,365	3,633	1,319	746	553	271	274	237	127	74	85	92	99
Upstate New York - Ailleurs dans l'État de New York	2,460	2,208	2,068	2,855	3,144	3,235	1,486	917	557	551	616	696	752	1,111
Vermont	-	-	-	95	156	126	19	19	13	2	2	3	4	2
Minnesota	-	-	-	30	140	147	201	172	201	148	172	160	159	..
Maine	-	-	-	-	3	150	200	320	N/A	365	352	385	404	408
Montana	-	-	-	-	3	1	5	17	14	50	438	636	622	372
South Dakota	-	-	-	-	-	15	78	81	49	47	76	103	64	72
North Dakota	-	-	-	-	-	-	-	-	-	351	909	1,083	1,305	680
Hawaii - Hawaï	-	-	-	-	-	3	4	1	2	-	4	2	3	2
Pennsylvania - Pennsylvanie	-	-	-	-	-	2	-	-	-	-	-	-	4	-
Connecticut	-	-	-	-	-	2	-	-	-	-	3	-	-	1
New Hampshire	-	-	-	-	2	-	-	1	-	-	-	-	-	-
New Mexico - Nouveau Mexique	-	-	-	-	-	-	N/A	-	-	1	1	1	1	-
Oregon	-	-	-	-	-	-	1	-	-	2	4	2	-	2
Washington State	-	-	-	-	-	-	-	-	-	-	-	1,155	782	654
Michigan	-	-	-	-	-	-	35	-	-	-	-	-	91	81

(1) Updated figures.
(1) Nombres revisés.

Estimating the Public Costs of Teenage Childbearing

By Martha R. Burt

Summary

A formula for making national, state and local estimates of the cost to the public of teenage childbearing is derived from a review of 12 studies. The formula is then applied to U.S. data. The calculations yield a single-year cost for 1985 of $16.65 billion paid through three programs—Aid to Families with Dependent Children, food stamps and Medicaid—for women who first gave birth as teenagers. The calculations also show that the public will pay an average of $13,902 over the next 20 years for the family begun by each first birth to a teenager in 1985 and $5.16 billion over the same period for the families of all teenagers experiencing a first birth in 1985. If all teenage births were delayed until the mother was 20 or older, the potential savings to the public would be $5,560 for each birth delayed and $2.06 billion for the entire cohort of teenagers who would otherwise have had a first birth in 1985.

Previous Studies

Teenage childbearing has become an increasingly newsworthy topic as legislators, program officials and the general public have become aware of its tremendous social and financial costs. During the last decade, several attempts have been made to obtain reliable estimates of the financial costs of childbearing among adolescents. Most interest has focused on public costs—through Aid to Families with Dependent Children (AFDC), food stamps, medical assistance and social services; however, at least one study has also looked at private costs. Some studies have explored the costs of teenage childbearing at a national level; others have focused on a single state, county or other local geographic area.

This article will review the 12 existing studies of the financial costs of teenage childbearing, and, on the basis of the approaches used to date, will develop a methodology for making consistent and comprehensive estimates of the costs to the public at the national, state and local levels. The methodology so derived will then be applied to U.S. data to obtain national estimates of the cost of teenage childbearing per year, per teenager's childbearing career and per cohort of teenagers giving birth in a single year.

The studies that are reviewed use varied methodologies, and they arrive at quite different cost estimates. Some studies calculate the public cost over a 20-year period for the family begun by a single teenage birth, as well as the total cost over the same 20-year period for the families begun by the cohort of babies born to teenagers in a single year. They ask, for example, what the childbearing career of a woman who has her first baby as a teenager in 1985 will cost the public by the time her first baby reaches adulthood. The model study of this type was conducted by SRI International for the Population Resource Center.[1] The study estimates that the family begun by each first birth to a teenager in 1979 would eventually cost taxpayers $18,710 (in 1979 dollars) for household support; further, it estimates that all such families begun by first births to teenagers in that year alone would eventually cost taxpayers at least $8.3 billion (in 1979 dollars). Throughout the rest of this article, such costs will be referred to as the "single-birth cost" and "single-cohort cost," respectively.

Other studies based on the same methodology include one for Mecklenburg County, North Carolina, and one for the St. Louis metropolitan area.[2] The Mecklenburg County study estimates the single-birth cost resulting from a child born to a teenager in 1979 to be $13,852 (in 1979 dollars), and the single-cohort cost of all such births to be $12 million. The St. Louis study estimates the single-birth cost for that metropolitan area to be $17,675 (in 1981 dollars). The single-cohort cost is estimated at $82 million (in 1981 dollars).

The methodology uses as its denominator all teenagers experiencing a first birth. Many of these mothers never receive welfare. The cost estimates are averages that spread the public cost arising from some teenagers over first births to all teenagers. Therefore, the estimates will be considerably lower than those that include only welfare recipients in their base.

Some studies estimate the total public outlay for families begun by teenage births in a given year, including expenses for families that were started when the mother was a teenager, even though she is now older. Only a' out 3–4 percent of the AFDC caseload at any time consists of families headed by women who are currently teenagers, but approximately half of AFDC households were started as a result of teenage births.[3] Therefore, total public cost for a single year is very large. The model study of this type, conducted by The Urban Institute, estimates that the public spent $8.55 billion in 1975 on AFDC, Medicaid and food stamps for families begun by teenage births.[4] The researchers subsequently used simulation techniques to estimate a parallel figure for 1990. Expressed in 1982 dollars, that estimate comes to $5.83 billion; it is considerably lower than the 1975 figure because of the institution of more restrictive eligibility criteria for welfare programs as a result of the Omnibus Budget Reconciliation Act of 1981. Finally, a parallel study for Monroe County, New York, arrives at estimates of $26 million for 1977 and $24 million for 1978.[5] Figures of this type will be referred to as the "single-year cost" throughout this article.

A number of studies ask somewhat different questions. Two calculate costs only for the year in which the birth occurs and only for children whose mothers are 20 or younger

Martha R. Burt prepared the original study from which this article is derived while she was working as a consultant with the Center for Population Options; the work was supported by a grant to the Center from the Mary Reynolds Babcock Foundation. Burt is director of the Social Services Research Program at The Urban Institute, Washington, D.C.

at the time of the study.[6] Three do not include the cost of one or more of the three major public programs (AFDC, Medicaid and food stamps) in all or part of their calculations.[7] Three use only teenage mothers receiving public assistance or those designated in some way to be of low or marginal income as the denominator, rather than all teenagers giving birth, so that the cost estimated per birth is not adjusted for the probability of receiving welfare.[8] All of these estimates may be important locally, but they are not as comprehensive as those derived from the more inclusive methodologies on which this article focuses. In addition, questions about the cost of a particular aspect of a program can always be answered by following the more comprehensive methodologies.

Of the studies reviewed for this article, only one attempts to calculate private as well as public costs.[9] Children require expenditures whether or not they are born to teenagers. Generally, parents pay the expenses of raising their children, both in direct cash outlays and in opportunity costs.[10] Businesses pay their share, too, through insurance for employees and their families, through taxes for schools and other services for children, through the costs of crimes committed by children, and so on. While there is nothing intrinsically wrong with trying to estimate private as well as public expenditures for children, the public focus remains the principal concern of policy-makers. Private costs are not included in the estimates presented in this article.

Assumptions Regarding Public Costs

The 12 studies vary in the assumptions they make about several critical dimensions of the calculations: which public costs to include; whether to base calculations only on teenagers who have a first birth during the year in question, or also on teenagers experiencing second and higher order births during that year; whether to base calculations on all teenagers experiencing a birth, or only on unmarried teenagers; whether to discount the cost in future years; whether to calculate marginal or full cost; and how many years to project. These issues are discussed below.

• *Which of the many relevant public programs are the most important ones to include in estimating the costs of teenage births?* The three imperatives are AFDC, Medicaid and food stamps, since they constitute the largest public programs reaching the greatest numbers of households. After these three, other inclusions will depend on the availability of data and the researcher's conviction as to the magnitude of the cost and the policy importance of the service. A few of the additional costs calculated in some of the studies that were reviewed include emergency and one-time payments for AFDC households; social services; job training; and housing. The single-birth and single-cohort estimates presented in this article include social services and housing costs.

The Monroe County study found that emergency and one-time payments amount to 13 percent of the combined cost of AFDC, Medicaid and food stamps.[11] Such payments may or may not be included in any AFDC expenditure figure obtained from local officials that would be used to calculate a single-year cost. They are almost certainly not included in any estimate of the average monthly benefit per recipient—the figure used in calculating single-birth and single-cohort costs. If state or local authorities make moderate or heavy use of these types of supplemental payments to AFDC households, a researcher estimating costs for that state or locality might want to ensure that such outlays are included.

Expenditures for social services buy many different things. In an Illinois study, social services mean special teenage pregnancy and parenting programs, and constitute a tiny proportion of total estimated costs.[12] In Mecklenburg County, this category means day care and school lunch programs.[13] Social services amount to 15 percent of single-birth and single-cohort costs in SRI's calculations, but that study does not define what is included in the term.[14] The St. Louis study simply adds five percent of AFDC costs for social services, without trying to develop estimates based on agency data.[15]

Foster care for the children of teenage parents is potentially very costly, and researchers making local estimates of single-year costs may want to include this type of program. The Illinois study cites an estimate by the Illinois Department of Children and Family Services that 20 percent of referrals for child abuse and neglect involve parents aged 19 and younger; nine percent of the referrals each year result in foster care, at an annual cost of $4,800 per referral.[16] New York has estimated that at least 20 percent of the children in its foster-care system were born to mothers who experienced their first birth as a teenager.[17]

However, the data necessary to include foster-care expenditures in single-birth or single-cohort costs (which are projections up to the child's adulthood) do not exist, because there is not enough evidence on what the probability is that a given teenage mother will have a child removed from her custody. One cannot, therefore, assign an expected value for the cost of foster care to a single individual. To do that, the researcher would have to know both the cost of the care and the probability that the mother would need to use it.

Job training and housing costs are included in some studies. Job training is costly, but it usually occurs during a single year, and a very small proportion of teenage parents receive it. Housing costs have been calculated by estimating the proportion of public housing units occupied by households that were established as a result of a teenage birth—a proportion that amounts to five percent, according to the SRI and St. Louis studies.[18] In these two studies, housing costs are between one and two percent of total AFDC expenditures. While expenditures for public housing are relevant, so are rent subsidies for private housing, which may cost as much as or more than public housing. Neither cost may be worth calculating from agency data, and estimates based on assumptions about their magnitude may be the best approach.

• *Should the denominator consist only of teenagers experiencing a first birth, or should it include all teenagers giving birth that year, regardless of parity?* Twenty-three percent of all teenagers giving birth in 1984, for example, were having a second, third or even fourth child.[19] Only teenagers experiencing first births, however, are used for the estimates presented in this article. Probabilities of subsequent births are calculated for teenagers having their first birth at various ages, and the costs associated with subsequent births are added to the cost of the first birth, to produce an estimate covering the period for which expenditures are projected. This approach focuses on the teenager's childbearing career: A first birth in adolescence triggers a chain of events, some of which entail public cost. Second and higher order births are part of that chain of events, in that an early first birth increases the probability of subsequent fertility.

• *Should births to all teenagers or only to unmarried teenagers be included?* All the studies reviewed for this article, and the national estimates for 1985 presented later, include births to all teenagers. Teenage mothers, whether they marry or not, have a statistically higher probability of receiving welfare at some time in their lives than do women who delay childbearing. Loss of schooling and higher subsequent fertility accompany all teenage childbearing, not just that among unmarried adolescents; indeed, these consequences are more pronounced among teenagers who marry.[20] The two factors reduce the mother's ability to support herself and her children, and increase public-sector costs.

• *Is a dollar tomorrow worth a dollar today?* The answer is no; a dollar, if invested rather than spent today, will be worth more tomor-

row. Discounting deflates projected costs by the amount a dollar invested today could earn (compounded, minus inflation) by the time it is needed to cover the future cost of supporting families begun by teenagers. Discounting is only relevant when calculating single-birth and single-cohort costs and is used in this article only for those estimates. It does not apply to single-year cost, since the year for which one is making the estimate is the present one, and the present value of a dollar is the appropriate figure to use.

• *Should one calculate the actual cost to the public of a teenage birth, or the difference in public cost between a teenage birth and a later birth?* The issue arises because approximately one in 10 women who wait until after their teenage years to begin childbearing also receive public support.[21] In addition, even the best interventions are likely only to delay an initial teenage birth, not prevent it entirely, although subsequent births may be prevented altogether. This article calculates both the total cost of a teenage birth and the marginal cost—the difference between what the public pays for a teenage birth and what it pays for a delayed birth. The total cost is important because it tells how much cash the public will have to lay out both now and in the future. The marginal cost is not quite as large, but presents a more realistic picture of what the public would save if the birth were delayed. Through computer simulation, an Urban Institute study estimates that a 50 percent reduction in births to women aged 19 and younger would reduce the 1990 single-year public cost by 20 percent. Total elimination of births to unmarried women 17 and younger would reduce the 1990 cost by 17 percent, and a 50 percent reduction in births to these young women would reduce it by 10 percent.[22] There is no one-to-one relationship between teenage childbearing and public cost, because teenage births in these simulations, as in reality, are mostly delayed rather than eliminated, and because factors associated with poverty still characterize the lives of many teenagers, even when the computer simulation artificially prevents them from having births. These factors eventually lead to public dependency for some proportion of teenagers.

The marginal cost is, thus, a very important figure to calculate, but it is not easy to estimate adequately what proportion of the cost is marginal. The model this article presents uses 40 percent of the full cost of teenage childbearing as the marginal cost associated with a teenage birth as opposed to a birth occurring at age 20 and older. The 40 percent figure was developed by assuming no births to teenagers and by doubling the 20 percent savings that The Urban Institute estimated would be achieved by a 50 percent reduction in births to mothers younger than 20. Therefore, the public could expect to save 40 percent of the full cost of teenage births by eliminating teenage births altogether.

• *For how many years are the teenager and her family potential recipients of public support, following the birth of her first child?* The base number of years would be 18, representing the age at which a child born to a teenager would no longer be a minor, and would no longer be eligible for welfare. The SRI study used 20-year projections, however, because the levels of subsequent fertility known to be associated with teenage births—30 percent experience a second pregnancy within two years of a first birth[23]—suggest the possibility of public support during the growth to adulthood of more than one child.

The model outlined in this article also makes 20-year projections, but using a shorter period would be acceptable if good reasons for doing so exist and if the number of years covered by the calculation is always made clear. One might, for example, project only 10 years after the first birth, both because most medical costs occur in those years and because the probability of receiving welfare diminishes in the second decade after a teenage birth.

1985 Single-Year Costs

The single-year costs in 1985 for the three major public programs are shown in Table 1. Total AFDC expenditures for 1985—almost $16 billion—have been obtained from U.S. budget estimates and include administrative costs.[24] To derive total food stamp expenditures for AFDC recipients, the average monthly food stamp allocation per individual in 1984 ($42.80)[25] is increased by two percent (to $43.66) for 1985.* This figure is multiplied by 12 to obtain an annual estimate, and administrative expenses of 12 percent are added.[26] The result is then multiplied by the estimated number of Medicaid recipients who were on AFDC in 1985,†[27] and adjusted for the 75 percent participation rate of AFDC households in the food stamp program.[28] These procedures produce an estimate of more than $6 billion in food stamp expenditures for AFDC households.

Table 1. Estimates of public outlays for AFDC, food stamps and Medicaid paid to all recipients and to families begun by a teenage birth, 1985

Program	All recipients (in billions)	Teenage mothers (in billions)
Total	$31.40	$16.85
AFDC	15.69	8.32
Food stamps	6.45	3.42
Medicaid	9.26	4.91

Medicaid expenditures are estimated in a similar fashion. First, annual average costs of $889 per AFDC adult and $435 per AFDC child in 1985 have been derived by inflating the 1984 figures by five percent.‡ Administrative expenses of five percent are added next.[29] These average costs are then multiplied by the number of AFDC adults (5,381,000) and AFDC children (9,285,000) receiving Medicaid in 1985.[30] The result is an estimate of more than $9 billion in Medicaid expenditures for AFDC families.

The second column of Table 1 shows the 1985 public outlay through these three programs attributable to families established as a result of teenage childbearing. The total outlay of nearly $17 billion indicates that families started by a teenage birth absorb approximately 53 percent of total public expenditures. This finding is conservative, since several other studies have produced estimates ranging from 50 to 60 percent.[31] The figures in the table include both direct payments to individuals and the administrative costs of the three programs. If administrative costs were excluded, the estimate would be $15.08 billion.

*Per-recipient food stamp allocations are indexed to the food component of the Consumer Price Index; increases in food stamp allocations have averaged 2–3 percent a year. Thus, using two percent as the factor for inflating the 1984 average figure per recipient produces a conservative estimate.

†So that estimates of Medicaid and food stamp expenditures would be based on the same number of AFDC recipients, the number of Medicaid recipients who are on AFDC is used as the basis for calculating both Medicaid and food stamp costs. The food stamp estimate is then adjusted for the participation rate of AFDC households in the food stamp program.

‡The 1984 data were obtained from the Medicaid Hotline (301–597–1417). The figures used are Medicaid costs for AFDC recipients exclusively, and do not include any costs associated with Supplemental Security Income or elderly Medicaid recipients. The Consumer Price Index for hospital-based medical care (inpatient and outpatient combined) has increased an average of 11.6 percent per year over the past eight years. Medicaid expenditures have increased an average of 12.1 percent annually during the same period (see: Committee on Ways and Means, 1985, op. cit., Appendix E, Table 1, reference 3). However, these inflation figures are for all hospital and Medicaid users. The population includes elderly non-AFDC individuals, who are probably responsible for a disproportionate share of the increase in expenses. Consequently, using a five percent inflation factor seems a reasonable and conservative approach.

Table 2. First births to teenagers in 1985, consequent public costs, and potential savings associated with delaying such births

Age at first birth	No. first births	Public costs		Savings	
		Single birth	Single cohort*	Single birth	Single cohort*
All	371,131	$13,902	$5.16	$5,560	$2.06
<15	9,638	17,724	0.17	7,089	0.07
15–17	144,308	17,689	2.55	7,076	1.02
18–19	217,185	11,214	2.44	4,485	0.97

*In billions of dollars.

Probably the only comparison figure available is the 1975 Urban Institute estimate of $8.55 billion. (That figure does not include administrative costs, which would add another $0.88 billion.) Inflating $8.55 billion to a 1985 equivalent using the Office of Management and Budget deflator, which incorporates actual inflation rates, yields an estimate of $16.33 billion ($18.01 billion with administrative costs added).[32] This method probably results in an overestimate, since public expenditures have not always been allowed to rise with inflation.

Inflating $8.55 billion in 1975 dollars using a factor of 1.79 (which is the 1975–1985 actual growth in average monthly payments to AFDC recipients) yields an estimate of $15.34 billion. This figure compares well with the author's estimate, excluding administrative costs, of $15.08 billion for 1985. Medicaid expenditures grew at a faster rate than did AFDC outlays, so this is probably a conservative estimate. Thus, the single-year costs estimated for 1985 appear to be well within the bounds of probability compared with other ways of estimating the same expenditures. In addition, the 1985 figure of $16.65 billion includes only the sums expended in the three major programs. Not included are other services that are more likely to be used by families begun by a teenage birth than by other families, such as publicly supported social services, housing, special educational programs, foster care and child protective services. Many of these figures are not available nationally, and may not be available locally, so $16.65 billion is a minimum figure.

Single-Birth and Single-Cohort Costs

To estimate single-birth and single-cohort costs, which are projections over a 20-year period, researchers must make a number of assumptions in addition to those already discussed. For example, since the projection traces a teenager's childbearing career from the time of her first birth, and counts subsequent children and their associated cost as part of the cost of the initial birth, some assumptions about the number and timing of subsequent births are necessary. Estimates made by The Urban Institute are used for that purpose.[33] The estimates are that teenagers who have their first baby at age 17 or younger will have 2.1 children by age 22, 2.8 children by age 27 and 3.2 children by age 32. Women whose first child is born when they are 18 or 19 will have 1.6 children by age 22, 2.4 by age 27 and 2.8 by age 32. These figures are used to calculate annual average increases in family size, which in turn are used when calculating the number of household members eligible for AFDC, food stamp and Medicaid support and when adding extra medical expenses for pregnancy and childbirth.

The computation of the number of household members eligible for public benefits is based on the assumption that no one 16 or younger heads her own household, but that all women 20 and older head their own households. With respect to the intermediate ages, it is assumed that 25 percent of 17-year-olds, 50 percent of 18-year-olds and 75 percent of 19-year-olds head their own households.

In this article, 0.34 is used as the probability that teenage mothers will receive welfare between ages 15 and 19.* At age 20 and older, the probability depends on the age of the woman at the time of first birth. For women whose first child was born when they were 17 or younger, the probabilities are 0.20 when they are 20–24, 0.16 when they are 25–29 and 0.02 when they reach 30 and older ages. For women 18 or 19 at first birth, the comparable probabilities are 0.15, 0.09 and 0.03.[34]

Application of these probabilities is quite straightforward if one is estimating costs only for 18-year-olds or only for 15-year-olds. However, in the current methodology, we combine young women aged 15–17 and 18–19 to arrive at an estimated cost. This approach requires some adjustments of the probabilities applicable to the transition years. For example, among 15–17-year-olds, the 17-year-olds will turn 20 in the fourth year of the projection and will be subject to a 0.20 probability of receiving welfare; the 15–16-year-olds, however, will be only 18–19 in the fourth year, so the 0.34 probability of receiving welfare will still be applicable to them. Therefore, the probability used for the fourth year of the projection will be the average of the probabilities for each age weighted by the proportion of the group at each age. The same sort of adjustment must be made for each year that part of the group is old enough for the next applicable probability, but part of the group is not.

The probabilities of receiving AFDC among women 20 and older are 4–15 percent lower than those used in the SRI study (the actual proportion depends on the woman's age and age at first birth), because the present estimates reflect the more restrictive criteria that were set for welfare eligibility by the Omnibus Budget Reconciliation Act of 1981.

Inflation is assumed to average five percent per year over the 20 years of the projection. Money invested in 1985 is assumed to grow at a real interest rate of four percent annually after allowing for inflation. Thus, four percent compounded annually is used as the discount rate. This practice follows the discounting procedure used by SRI International.[35]

The number of first births to teenagers is taken from 1984 natality data,[36] which are the latest available. The figures for 1985 are assumed to be the same and are shown in the first column of Table 2. The table also presents estimates of the total public outlay over the 20-year period from 1985 to 2004 for a woman who had her first birth as a teenager in 1985 (single-birth cost) and for all women who first gave birth as teenagers in 1985 (single-cohort cost).

The single-birth cost of $13,902 can be compared with SRI International's estimated $18,710 for a first birth in 1979, with the estimate of $17,675 for a first birth in St. Louis in 1981 and with the estimate of $13,852 for a first birth in Mecklenburg County in 1979.[37] All other things being equal, one would have expected the 1985 estimate to be higher than any of these earlier estimates, simply because of inflation. The major reason for the 1985 estimated cost being lower is that a teenager's probability of receiving public assistance was reduced, because of the more restrictive eligibility criteria that were introduced in the Omnibus Budget Reconciliation Act of 1981. Thus, changes in the availability of welfare support make a substantial difference in the long-term fiscal consequences of teenage childbearing. Single-birth costs were multiplied by the number of teenagers who experienced first births in 1985 to arrive at the single-cohort costs.

The table also presents the potential savings to the public if all teenage births were

*The 0.34 figure is derived by weighting the AFDC probabilities estimated by Kristin Moore for teenagers experiencing first births at different ages by the proportion of teenagers of each age represented in the 1984 first-birth statistics and the number of teenage years remaining to them after the first birth (see: K. A. Moore, 1978, op. cit., reference 21). A single probability figure for all teenagers throughout their teenage years of dependency on AFDC was sought to simplify calculations.

Figure 1. Worksheet for calculating single-birth cost

1. Age at first birth (check one):	___ 14 or younger		___ 15–17	___ 18–19						
2. Year after first birth	1	2	3	4	5	6	7	8	9	10
3. Age that year	15–17	16–18	17–19	18–20	19–21	20–22	21–23	22–24	23–25	24–26
4. AFDC cost										
5. Food stamp cost										
6. Medicaid cost										
7. Social svs. & housing (7% of 4)										
8. Admin. cost (12% of 4 & 5)										
9. Admin. cost (5% of 6)										
10. Total (4–9)										
11. Probability of welfare	0.34	0.34	0.34	0.27	0.22	0.20	0.20	0.20	0.18	0.17
12. Total (11 × 10)										
13. Discount factor	1.00	0.96	0.92	0.89	0.85	0.82	0.78	0.75	0.72	0.69
14. Yearly full cost (12 × 13)										
15. Yearly potential savings (40% of 14)										

delayed until the mother was 20 or older—the so-called marginal costs of teenage childbearing. The savings—$5,560 for a single birth and $2.06 billion for the cohort—are only 40 percent of total cost, reflecting the fact that even with delayed births and a potentially smaller family size, many women are still likely to need welfare.

Calculating Public Costs

A sample worksheet for calculating single-birth costs is shown in Figure 1. The worksheet applies to the first 10 years only; two such worksheets would be needed to calculate 20-year costs. The example given here is for women 15–17 years of age. Separate worksheets must be completed for other age-groups.

The age of the mother at first birth is checked on line 1, and her age during each year of the projection is entered on line 3. AFDC, food stamp and Medicaid costs in 1985* should be adjusted for the 20 years of the projection, to accommodate their anticipated failure to keep pace with inflation.† The adjusted figures are then multiplied by the anticipated number of family members receiving benefits in each year, and the results entered on lines 4–6 for each year. Social services and housing costs (seven percent of AFDC cost) and administrative expenses (12 percent of AFDC and food stamps and five percent of Medicaid) are calculated next and entered on lines 7–9.[38]

Lines 4–9 are then totaled for each year after first birth. The total is adjusted for the probability that the woman is receiving AFDC (in this example, the probabilities have already been calculated according to the proportion of women at each age and have been entered on line 11), and then must be adjusted for the discount factor (entered on line 13). The result is the yearly cost for one birth. All figures on line 14 are added to arrive at the single-birth cost for a 10- or 20-year period. Multiplying either the yearly cost or the figure for the entire period by 40 percent produces the potential savings in that year or over the period of the projection.

Once a worksheet has been completed for a single teenager in each age-cohort (e.g., 14 and younger, 15–17 and 18–19), the cost for all teenagers in each cohort can be obtained by multiplying the single-birth cost by the number of first births to teenagers in that cohort for that year. The cost for all teenagers experiencing first births in that year is then the sum of the costs for each age-cohort.‡

Discussion

This article has reviewed 12 available studies that estimate public costs attributable to teenage childbearing. The studies use very different methodologies, and a primary purpose of this article has been to extract some basic principles for making such estimates. These principles serve as the basis for the national estimates presented, and they double as recommendations to local planners interested in making similar estimates for their own populations.

The final figures derived from any analysis of public costs will always depend on the assumptions made. The estimates will increase if one assumes more births, and more closely spaced ones, following the first birth; if one assumes a higher rate of welfare participation during each year of the projection; if one assumes that inflation is lower or that increases in government outlays relative to inflation are higher; if one limits the analysis to poor and marginal-income teenagers, who would be expected to have higher rates of welfare dependency than all teenagers; or if

*The AFDC cost figure per recipient is $113 per month (see: Committee on Ways and Means, 1985, op. cit., Section 8, Table 17, reference 3). Figures for food stamps and Medicaid are given earlier in the text. Costs to Medicaid of pregnancy and childbirth are estimated at $3,107 for a birth to a teenager 14 and younger, $2,867 for a birth to a 15–17-year-old, $2,397 for one to an 18–19-year-old and $2,446 for a birth to a woman 20 and older.

†AFDC is reduced by 3.2 percent per year, based on the assumption that the annual inflation rate will be five percent, whereas the annual increase in AFDC will only be 1.8 percent (see: Committee on Ways and Means, 1985, op. cit., Section 8, Table 17, reference 3). Food stamp cost is reduced by three percent per year, based on the assumption of a five percent inflation rate and a two percent increase in the food stamp allotment per recipient. Medicaid expenditures are not adjusted, because the anticipated five percent inflation rate and five percent growth rate in Medicaid expenditures cancel each other out.

‡A manual that local authorities can use to assist them in calculating these costs has recently been published: M. R. Burt and D. Haffner, *Teenage Childbearing: How Much Does It Cost?* Center for Population Options, Washington, D.C., 1986.

one includes additional categories of costs in the analysis.

What is critically important when developing estimates of this kind is to make the underlying assumptions clear, since so much rests on them. Clearly stated assumptions make it feasible to compare estimates derived from a number of different studies. In the national estimates presented in this article, for instance, 20-year projected costs are considerably lower than similar estimates made with data applicable to the years before 1982, because they incorporate the lower welfare participation rates that followed from 1981 legislative changes made in the eligibility for AFDC.

Estimates of public outlays for teenage childbearing often attract a great deal of attention in the media, at both the national and the local level. Such estimates are time-consuming but not difficult to calculate, and enough is known about how to make them that such figures should become readily available to policy-makers and program-planners throughout the United States.

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